Shining Mountains Lodge

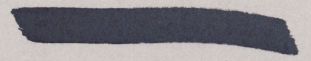
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SHINING MOUNTAINS LODGE

West Glacier, Montana

Janet I. Storey

Submitted in partial fulfillment of the requirements for the degree of

Bachelor of Architecture

at

Montana State University

Bozeman, Montana

June 1988

Approved:

Jerry Bancroft, Thesis Advisor

Robert Utzinger, Director

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x. ACKNOWLEDGEMENTS

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xi. TABLE OF CONTENTS

x. Acknowledgments
xi. Table of Contents
xii. List of Illustrations and Credits

I. Project Introduction
  A. The Project's Function, Users, and Location.

II. Goals and Project Scope
  A. Educational Goals
  B. Project Goals
  C. Project Scope
III. Users
  A. Cross Country Skiers
  B. Summer Guests
  C. Conference and Seminar Participants
  D. Design Implications

IV. Spatial and Functional Requirements
  A. Spatial Summary
  B. Spatial and Functional Requirements

V. Climate
  A. Summary and Design Implications
  B. Graphic Representations of Climatological Data

VI. The Site
  A. The Location, History & Natural Features
  B. Design Implications

VII. The Context
  A. The History
  B. The Natural Features
  C. Recreation

D. The Architecture
E. Design Implications

VIII. Case Studies
A. Lone Mountain Ranch, Big Sky, Montana.
B. Wachusett Mountain Base Lodge, Princeton, Massachusetts.
C. Hotel Lenado, Aspen, Colorado.

IX. Zoning and Building Codes

X. Additional Information
A. The History of Cross Country Skiing
B. The Exercise Benefits of Cross Country Skiing

XI. Bibliography

xii. LIST OF ILLUSTRATIONS

I. Project Introduction
1. Location Map - United States
2. Location Map - Montana
3. Vicinity Map - Region
4. Vicinity Map - Land Distribution

VI. The Site
1. Vicinity Map - Region
2. Photo - Existing Barn
3. Photo - Existing Cabin
4. Photo - Existing Log House
5. Site Map -Existing Conditions
6. Topographic Map - Section 13
7. Site Analysis - Access
8. Photo - View
9. Site Analysis - Views
10. Photo - Tree Stumps
11. Site Analysis - Tree Cover

VII. The Context
1. Photo - Belton Chalets
2. Photo - Glacier Park Lodge
3. Photo - Rustic Cabin
4. Photo - Forest Service Brown
5. Photo - Half Hipped Gable
6. Photo - Swiss-style Ornamentation
7. Photo - West Glacier, Montana
8. Photo - West Glacier, Montana
9. Photo - New School, West Glacier, Mt.
10. Photo - Grouse Mountain Lodge, Whitefish, Mt.
11. Photo - Kandahar Lodge, Whitefish, Mt.

VIII. Case Studies

1. Map - Lone Mountain Ranch Site Plan
2. Photo - Lone Mountain Ranch
3. Photo - View of Lone Mountain
4. Photo - Cabin, Lone Mountain Ranch
5. Photo - Cabin, Lone Mountain Ranch
6. Photo - Cabins, Lone Mountain Ranch
7. Photocopy - Wachusett Mountain Lodge Exterior
8. Photocopy - Wachusett Mountain Lodge Floor Plan
9. Photocopy - Wachusett Mountain Lodge Lounge
10. Photocopy - Wachusett Mountain Lodge Dining Room
11. Photocopy - Hotel Lenado Floor Plan
12. Photocopy - Hotel Lenado Exterior
13. Photocopy - Hotel Lenado Guest Room

Introduction

I. PROJECT INTRODUCTION

Shining Mountains Lodge is a proposed four season resort facility located in northwestern Montana on the east slope of Teakettle mountain, eight miles southwest of West Glacier, Montana (illustration 1 - 3). The facility will be a complex of 15 buildings that include a main lodge, ten guest cabins, management and employee housing, a spa and a maintenance building. The lodge is conceived as being a destination resort that will provide lodging, food, and services.

In the winter the Lodge will function as a cross country ski resort offering lessons, rentals and an extensive trail system. The price of lodging will include three meals a day, use of all facilities and ski trails. The dining room will be open to outside guests for lunch and dinner. Dinners will be served "family style" as is the tradition at most cross country lodges and guest ranches in Montana. There will be a retail shop that will offer skis, clothing, gifts and toiletries. The rental ski shop will provide skis and boots for both the guests and day skiers. There will be an outdoor whirlpool with enclosed sauna and changing room for the use of the guests. Evening activities such as lectures, slide shows and music performances will be held in the lodges meeting rooms. A game room with a pool table and card tables will also provide evening entertainment. The lodge living room will provide a quiet spot for reading and conversations. The maximum expected guest occupancy in the winter is between 60 and 75 people.

In the summer the resort complex will be a family interpretive and educational center for Glacier National Park accommodating 70 to 95 guests. As an interpretive center, the Lodge will offer classes on the geology, wildlife and plants of Glacier as well as classes on photography. The courses will be a mix of classroom and field work with the participants staying at the Lodge but spending time outdoors in the surrounding area and Glacier National Park. The lodge will have two connected meeting rooms for instructional purposes as well as outdoor meeting areas. A children's program with plenty of activities and "field trips" will keep the kids entertained. There will be a variety of interesting recreational activities organized by the lodge -- such as van and hiking excursions to Glacier Park, scenic floats, white water raft trips and float fishing trips -- which will compliment the interpretive program. Hiking,

mountain biking, a fitness par course and access to the North Fork of the Flathead River for fishing and swimming will all be available on the premises. The Lodge will also provide information to guests wanting to take advantage of golf, horseback riding and other independently operated attractions. The remainder of the year, the Lodge will cater to conferences, seminars and group meetings.

The target market group for Shining Mountains Lodge will include a large cross section of middle to upper middle class couples and families who are seeking an active and educational vacation experience. The users are defined in depth in the USER section.

The building site was selected according to a set of criteria that was developed following an investigation of successful cross country ski centers in Montana. The primary and secondary selection criteria and the reasons behind the criteria are:

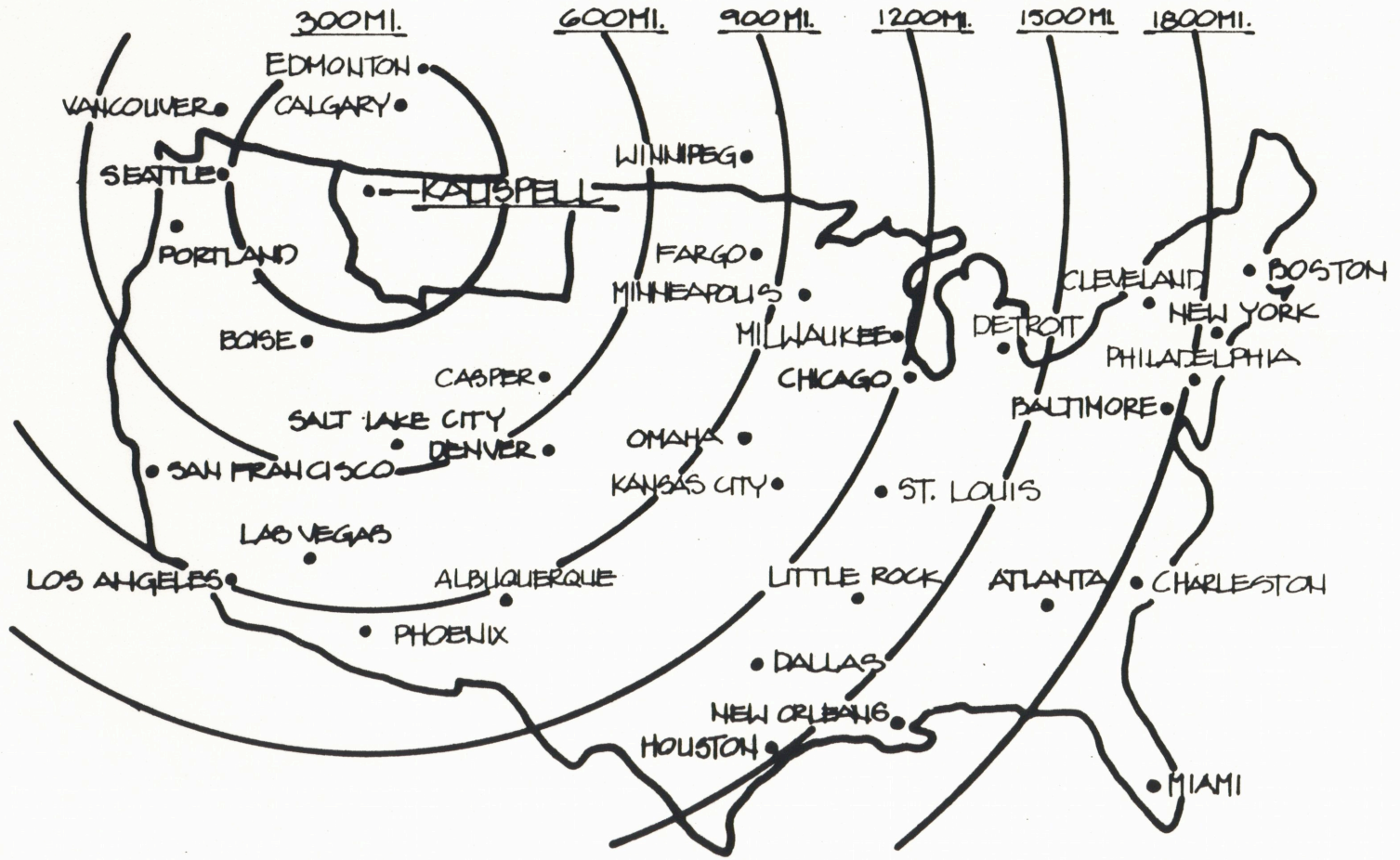
1. Proximity to a national park - provides established recognition and attraction.
2. Proximity to public air transportation - facilitates access to site.
3. Adjacency to Forest Service Land - required to provide an inexpensive land base needed for trail system.
4. Natural beauty - needed to encourage return visits.
5. Copious snowfall - needed to ski on!
6. Appropriate terrain for recreation activities.

1. Proximity to a stable population base - provides an additional source of income for the restaurant and other services.
2. Accessibility to a downhill ski area - increases marketability by adding an additional layer of activities.
3. Availability of alternative transportation systems such as all year highways and AMTRAK - facilitates access in case of disruption of airline service and provides diverse transportation packages.

The West Glacier area has been selected as the location that most closely satisfies the criteria. The area is directly adjacent to Glacier National Park, it is approximately 30 miles from Glacier International Airport and it is close to both Kalispell and Whitefish, Montana. The Big Mountain downhill ski resort is 35 miles to the west and West Glacier is practically surrounded by

National Forest Service Land (ill. 4). The area is beautiful and has one of the highest precipitation levels in the state.

The site selected from the area is located 8 miles to the southwest of West Glacier on the slopes of Teakettle Mountain (ill. 3). The site has a gentle slope, Forest Service Access on two boarders and a beautiful view of several peaks in Glacier Park. The property is discussed in depth in the SITE section.



AIR TRAVEL DISTANCES TO KALISPELL, MONTANA

-GLACIER PARK INTERNATIONAL AIRPORT IN KALISPELL IS APROX. 27 MILES FROM WEST GLACIER.

Location

Illustration 1.- Location Map.

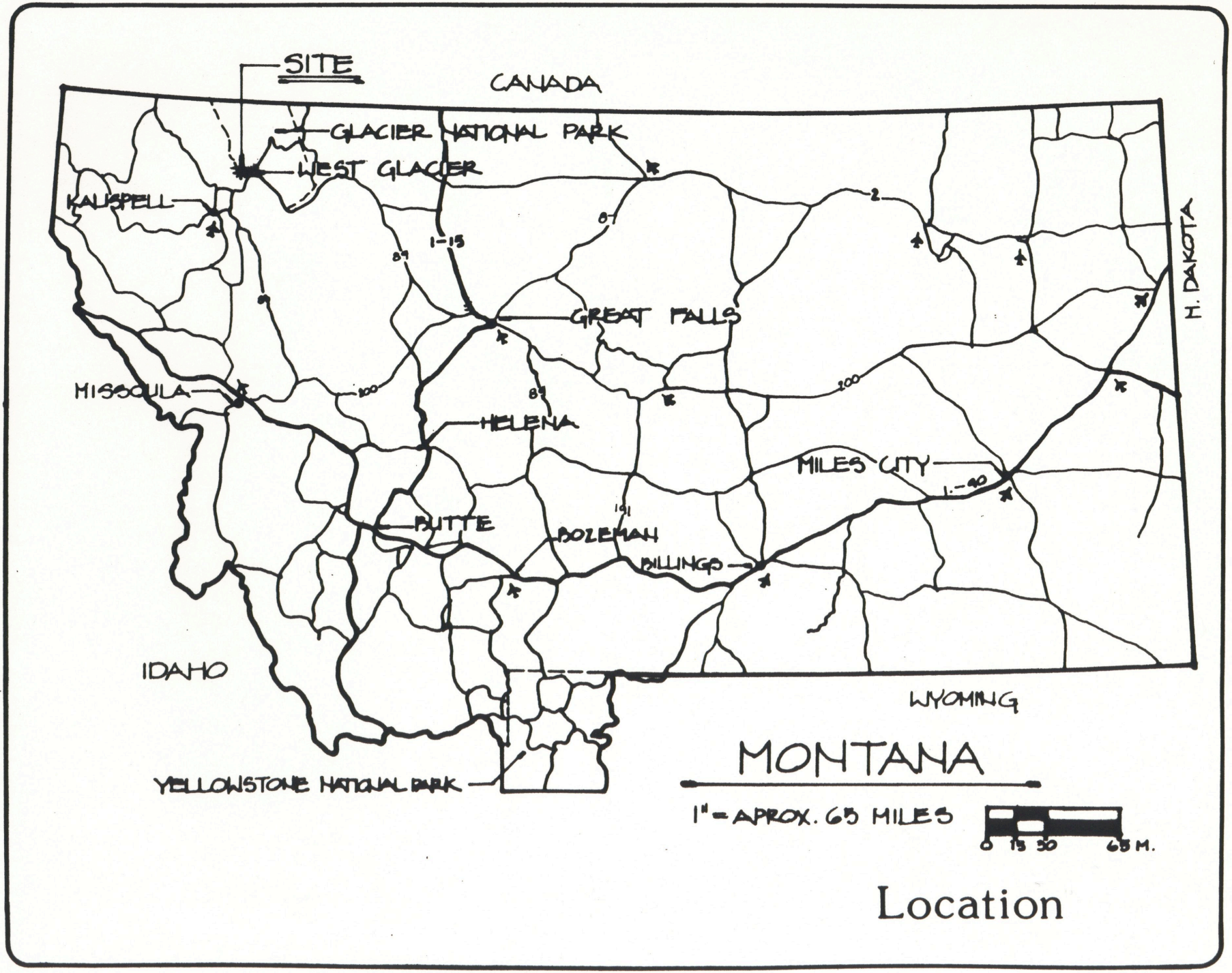


Illustration 2.- Location Map.

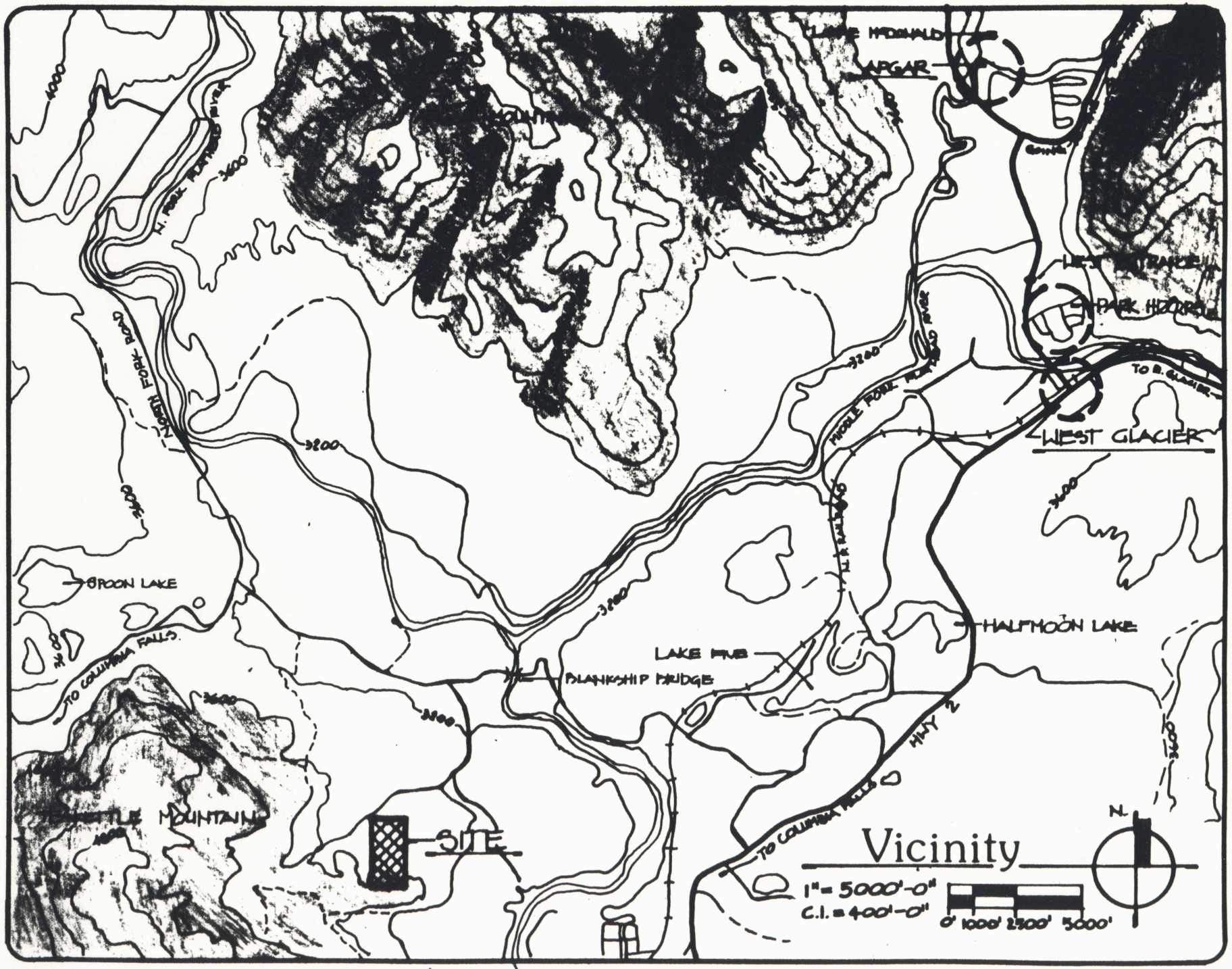


Illustration 3.-Regional Vicinity Map.

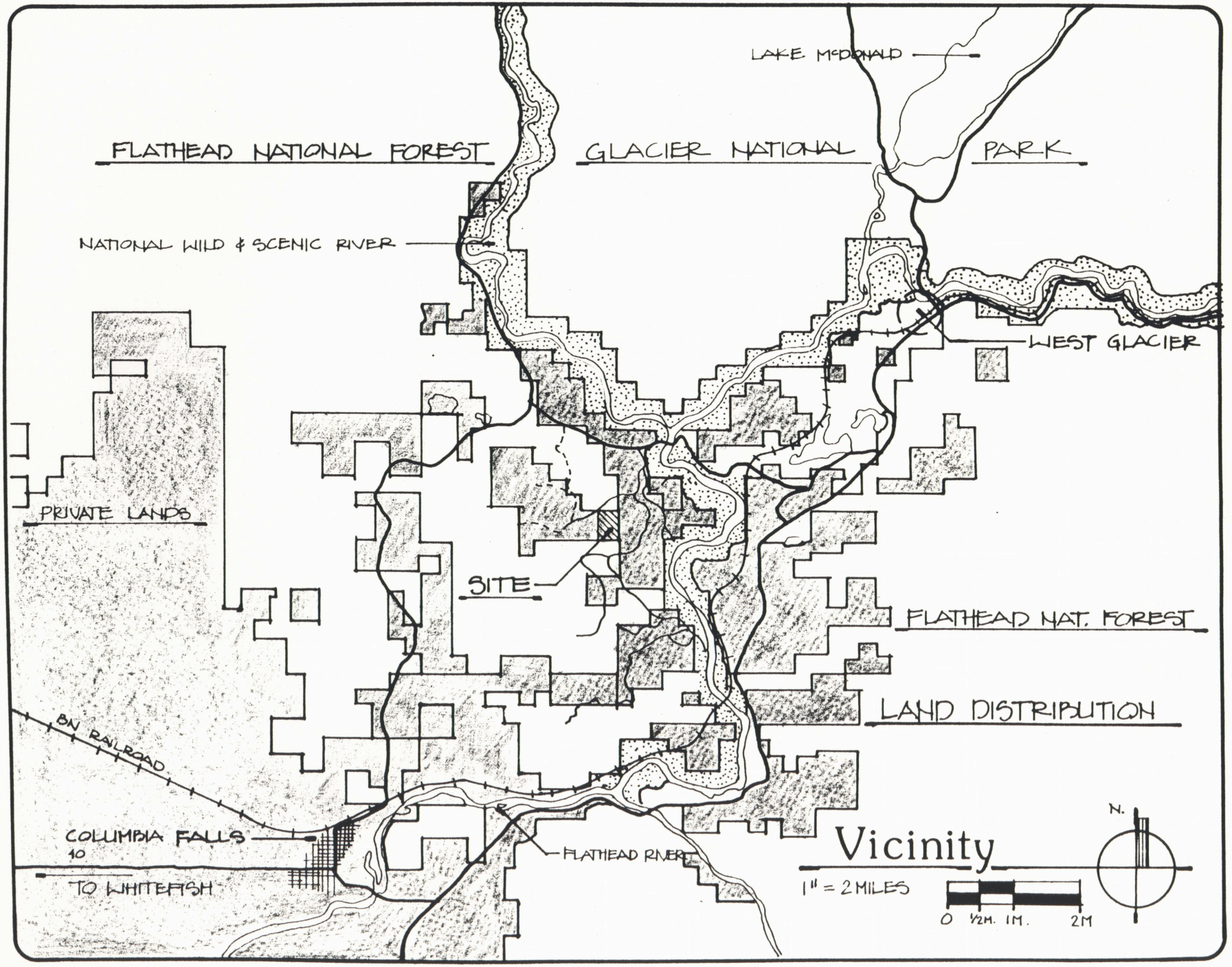


Illustration 4.-Land Distribution.

Goals

II. GOALS AND PROJECT SCOPE

A. EDUCATIONAL GOALS

I visualize my thesis project as the culmination of my five years of education at Montana State University School of Architecture. As such, I intend to utilize and integrate as many components of my architectural education as time will allow. In specific, my goals are;

1. To experiment with the use of materials as a means to achieve design goals.

2. To increase my design capabilities.

3. To explore computer applications in architecture.

4. To integrate the use of solar design in the solution.

5. To establish a schedule and abide by it.

6. To integrate interior design into the final design solution.

B. PROJECT GOALS

1. To design a facility that harmonizes with the site's natural features.

2. To create a facility that is humanistic in its scale, materials and setting.

3. To create throughout the facility a warm, comfortable, "classically rustic" atmosphere.

4. To create a facility that provides a sense of retreat from everyday life for the guests, that allows for privacy yet also offers the opportunity to interact with other guests.

5. To design a facility that is climate responsive.

6. To create a facility that acknowledges and is responsive to the

architectural character of the areas existing buildings, BUT does not mimic them.

C. PROJECT SCOPE

The scope of the project is the site planning for the complete facility and the architectural design of the lodge and guest cabins.

Users

III. THE USERS OF SHINING MOUNTAINS LODGE

There will be three separate user groups accommodated at Shining Mountains Lodge; 1. The cross country skier, 2. The summer guest, 3. The convention or seminar participant. While each group does have overlapping characteristics, each user group requires a separate investigation.

A. CROSS COUNTRY SKIERS

Cross country skiing will be the focus of winter activity at Shining Mountains Lodge. To operate successfully the lodge will need to be designed to complement the skiers tastes and the activity.

Today, cross country skiing is in the midst of a period of renewed interest that began in the 1960's.1 Cross country skiing became popular during the 60's and the 70's for a number of reasons; it was inexpensive to participate in, it was a way to "get back to nature" and it provided one of the most complete forms of exercise available. The cross country skiers of the 1980's are no longer "just taking off in the boondocks and doing their own thing with a pair of Levis and some granola," instead they are an upscale group of people gravitating toward cross country ski centers, fashion and performance.2

The demographics of the cross country ski market, as reported by a recent survey of Cross Country Skier magazine subscribers, reveal that the 80's skier is typically between the ages of 25 to 44, college educated and has a median household income of 43,000 dollars. The majority of the skiers are employed in a professional or managerial position, and sixty percent have no children under the age of 18. Most ski more than once per year and almost all ski in prepared track.3 In a separate study conducted by the Cross Country Ski Association of America it was found that skiers regularly travel over 100 miles to reach a ski area.4

Rocky Mountain cross country ski resorts, such as Lone Mountain Ranch, typically have a high occupancy rate in the winter but, the total guest count is lower because couples tend to go on winter ski vacations, leaving children at home.

B. THE SUMMER GUEST

Summer guests will be couples and families looking for a recreational

Rocky Mountain vacation which also offers a learning opportunity. Unsupervised activities available on the premises will include; walking, running, hiking, mountain biking, a fitness par course, fishing, river swimming, games and a hot tub / sauna. Organized activities -- some free and some available at extra cost -- include; scenic floats, guided hikes, guided fishing trips, Going-to-the-Sun Road excursions and overnight river trips. A complete program will be offered appealing to the avid fly fisherman including guided float trips, guided walking trips, and, fishing excursions into Glacier Park and the Blackfeet Indian Reservation.

Every week, two, two-day, outdoor learning programs will be offered. These programs will be active, fun, have a strong "hands on" learning component and will highlight some interesting unique facet of the area. Topics may include; wildflower photography, tracking the wolf, the Blackfeet and Flathead Indians, the geology of Glacier Park, railroad buff photography excursions, entomology and fly tying or, the Indian Vision Quest. Guests will be able to attend some sessions of either or all of both if desired. A separate, supervised, children's program for kids 6 through 12 will be active, fun and have a more subtle learning component. Baby sitting will be available for children younger than six.

The demographics of this market, as reported by recent surveys of Audubon and Fly Fisherman magazine subscribers, reveal these people are active, reasonably affluent and willing to travel. Audubon readers are on the average 47 years old, employed full-time in a professional or managerial position are college graduates and have a median family income of $32,500.5 A casual browse through an issue of Audubon will reveal that there are a number of purveyors of educational / recreational vacations, including The Audubon Society itself. In Montana both the Yellowstone Institute located in Yellowstone National Park and the Glacier Institute in Glacier National Park offer educational programs.

According to Fly Fisherman magazine the average fly fisherman is 46 years old, college educated, has a total median family income of $47,800 and is employed in a professional, managerial or technical position. The fly fisherman group enjoys traveling, having taken, on the average, over 8 domestic trips in the last twelve months and 1.3 foreign trips in the last three years.

A recent article in Conde Nast's Traveler magazine reported that this type

of summer and winter vacation -- the educational / environmental "adventure" -- is in the mist of a boom that started in the last few years.6 The program at Shining Mountains Lodge is designed to appeal to variety of interests, but similar demographic and psychographic characteristics such as age, disposable income, available vacation time, and a keen interest in the outdoors and outdoor recreation link these groups together.

C. THE CONFERENCE AND SEMINAR PARTICIPANT

Shining Mountains Lodge hopes to attract a number of different types of conferences and seminars to extend the business seasons. These conferences will include continuing education seminars and private corporation conferences. The group will be diverse, but is expected to attract mainly middle to upper middle class participants. The demographics from Audubon and Fly Fisherman are applicable here.

D. DESIGN IMPLICATIONS

There are several design implications that can be drawn from the examination of the users. First, the design should focus on the natural aspect of the site and the surrounding environment. This is because, for the most part, the users will come to the Lodge mainly to participate in the outdoor recreation offered. The design should reflect that involvement by integrating with the out-of doors as much as possible.

Second, the design should reflect the taste, lifestyles and expectations of the potential guests. While the guests are coming to the Lodge to enjoy the out-of-doors it is unlikely that they want to "rough it". The average guests are foreseen to be in their forties, urbanites, with an upper middle class income and possibly a family. They are well traveled, and while they may enjoy "playing" hard outside during the day they want a comfortable place to relax at night.

FOOTNOTES: USERS

1. Bob Woodward, "Roots - Cross Country Style" Ski X-C, Winter, 1985, p. 60.

2. Bob Schaap, "New Day Dawning for Cross Country," Ski Area Management, May 1987, pp. 48, 132.

3. Data Probe, Inc., Cross Country Skier Subscriber Study, Emmaus: Rodale Press, 1986.

4. Cross Country Ski Areas of America and Ski Industries America, Cross-Country Ski Area Operations Survey, Winter, 1985-86.

5. RTS Marketing Research Services, Audubon Subscriber Study, May 1982, pp. 5 -10, 35 - 38.

6. Elizabeth Royte, "ADVENTURE, New Expeditions Set Out to Save the World: The Boom in Environmentalist Vacations." Conde Nast's Traveler, March 1988, pp. 113 - 114.

7. Simmons Market Research Bureau, Inc., Fly Fisherman, January 1985, pp. 6, 16.

Spatial & Functional Requirements

IV. SPATIAL AND FUNCTIONAL REQUIREMENTS

A. SPATIAL AND SQUARE FOOTAGE SUMMARY

THE LODGE

1. ENTRY	325 s.f
2. GUEST "LIVING ROOM" AND COMMON SPACES	1000 s.f
3. OFFICES Manager - 200 s.f. Reservation and check-in - 150 s.f. Bookkeeping - 150 s.f. Aux. office space - 200 s.f. Storage - 100 s.f. Rest room - 50 s.f.	850 s.f.
4. SKI & GIFT SHOP / SKI RENTAL Retail sales - 500 s.f. Rental shop - 150 s.f.	700 s.f.
5. SKI REPAIR / WAXING ROOM	200 s.f.
6. RECREATION ROOM	800 s.f.
7. DINING ROOM	1350 s.f.
8. KITCHEN	800 s.f.
9. SUN ROOM	325 s.f.
10. MEETING ROOMS	800 s.f.

11. GUEST ROOMS AND PRIVATE BATH 3 suites at 500 s.f. each 3 singles at 375 s.f. each 3 doubles at 450 s.f.	4925 s.f.
12. EMPLOYEE HOUSING (two units) Bedroom - 150 s.f. Living - 150 s.f. Bath - 80 s.f. Storage - 70 s.f.	900 s.f.
13. PUBLIC REST ROOMS	250 s.f
14. LAUNDRY ROOM	300 s.f.
15. MECHANICAL SPACE	200 s.f.
16. CIRCULATION SPACE	2000 s.f.
TOTAL LODGE SQUARE FOOTAGE	14,725 S.F.

ADDITIONAL BUILDINGS

1.GUEST CABINS 2 single cabins at 400 s.f. each 2 deluxe cabins at 800 s.f. each 1 duplex with 2 singles at 800 s.f. 5 duplexes with 2 suites at 1000 s.f. each	8200 s.f.

2. MANAGEMENT HOUSING 1100 s.f.
   Living - 250 s.f.
   Master bedroom - 160 s.f.
   Kitchen - 150 s.f.
   Bedroom - 140 s.f.
   Bath - 125 s.f.
   1/2 bath - 75 s.f.
   Storage - 100 s.f.
   Utility - 100 s.f.

3. EMPLOYEE HOUSING 2500 s.f.
   a. Apartments - 2 at 550 s.f. each
   Bedrooms - 130 s.f.
   Living - 140 s.f.
   Kitchenette - 100 s.f.
   Bath - 80 s.f.
   Storage - 100 s.f.

   b. Dormitory - 1400 s.f.
   Bedrooms - 150 s.f. (4 total)
   Living - 200 s.f.
   Bath - 2 at 100 s.f.; 2 at 50 s.f. (4 total)
   Storage - 200 s.f.
   Kitchenette - 100 s.f.

4. SPA WITH CHANGING ROOM 280 s.f.
   Sauna - 80 s.f.
   Changing room - 300 s.f.

5. SHOP & MAINTENANCE AREA 1500 s.f.

TOTAL SQUARE FOOTAGE 13,580 S.F.

TOTAL ALL BUILDINGS 27,130 S.F.

OUTDOOR SPACES

1. BAR-B-QUE & OUTDOOR MEETING SPACE	1500 S.F.
2. CHILDREN'S PLAY AREA	200 S.F.
3. TRAILHEAD AREA	200 S.F.

B. SPATIAL AND FUNCTIONAL REQUIREMENTS

The following section presents the spatial and the functional requirements of each space included in the program. The functional requirements provided for each space are:

1. Square footage requirement
   -Minimum area required to perform required function.

2. Hard requirements
   -Volumetric shape, furnishings, equipment, fixtures, utilities and finishes necessary to perform required function.

3. Soft requirements
   -The desired image of the space.

4. Solar and View Orientation
   -Optimal solar and view exposure to complement the function.

5. Adjacency Requirements
   -Adjacency required to facilitate the spaces required function.

6. Noise Environment
   -An analysis of the space's and / or function's ability to produce noise or its need to be protected from noise intrusion.

7. Special Requirements
   -Additional requirements or comments concerning the space.

LODGE REQUIREMENTS

ENTRY
Primary entrance and exit space. First impression point for interior.

1. Square footage requirement.
Total - 325 s.f.

2. Hard requirements - Furniture as required, skid resistant surface inside front door, fireplace (?), access to public telephone, durable construction throughout, high ceilings.

3. Soft requirements - Warm, comfortable room with a place to wait. Hub of the universe.

4. Solar and view orientation - View desired, southern orientation not required.

5. Adjacency requirements - Main office, dining room, retail store, public rest rooms.

6. Noise environment - Noise producing space.

7. Special requirements - Room for secure baggage storage required.

GUEST "LIVING ROOM" AND COMMON SPACES
The living room for the guests, a comfortable place to relax any time of the day and swap fishing stories or read a book.

1. Square footage requirement - seating for 30.
Total - 1000 s.f.

2. Hard requirements - Couches, end tables, coffee tables, easy chairs, fireplace, carpet, bookshelves, fly tying bench, moderately high ceiling.

3. Soft requirements - Rich, cozy, warm room.

4. Solar and view orientation - Light, but no direct sun, view is important.

5. Adjacency requirements - Dining room, entry, sun room.

6. Noise environment - Quiet.

7. Special requirements -Should not be a "thoroughfare".

OFFICES
Manager, reservation and check-in area, bookkeeping, auxiliary office space.

1. Square footage requirement - Manager - 200 s.f., Reservation and check in -150 s.f., Bookkeeping - 150 s.f., auxiliary office space - 200 s.f., Storage -100 s.f., Rest room - 50 s.f..
Total - 850 s.f.

2. Hard requirements - Desks, tables, Xerox machine, computer space, storage, private rest room.

3. Soft requirements - Well-lit, functional space.

4. Solar and view orientation - Direct solar access is not desired, outdoor view is desireable.

5. Adjacency requirements - Entry.

7. Special requirements - Should have visual contact with the entry area.

SKI & GIFT SHOP / SKI RENTAL
A space for retail sales of ski equipment and accessories (winter season), gift items, toiletries, books (year round) and fly fishing equipment (summer season).

1. Square footage requirement - 500 s.f. retail, 200 s.f. rental.
Total - 700 s.f.

2. Hard requirements - Retail display equipment and fixtures.

3. Soft requirements - Well lit, secure.

4. Solar and view orientation - Relatively unimportant yet, views of activities are important.

5. Adjacency requirements - Entry.

6. Noise environment - Low noise generation, should be protected from excessive exterior noise.

7. Special requirements - Exterior exit for ski rental shop.

SKI REPAIR / WAXING ROOM
A room for repairing and waxing of ski equipment. Available to guests in the evening.

1. Square footage requirement.
Total - 200 s.f.

2. Hard requirements - Work benches, durable solvent cleanable finishes.

3. Soft requirements - Not much ambience here!

4. Solar and view desired - Not required.

5. Adjacency requirements - Ski shop, ski rental area.

6. Noise environment - Can be a noise generating space.

7. Special requirements - Locking door between ski repair room and ski rental shop. Ski repair room to be available in the evenings for use by the guests.

RECREATION ROOM

A room to provide evening and rainy-day activities for the guests and their children. The activities include ping-pong, pool, card games, jig saw puzzles and board games.

1. Square footage requirement - Big enough for a pool table, ping-pong table and several card tables.
Total - 800 s.f.

2. Hard requirements - Pool table, card tables, chairs, games, durable finishes required, carpet.

3. Soft requirements - "Fun" atmosphere.

4. Solar and view orientation - Minimal importance.

5. Adjacency requirements - None.

6. Noise environment - Has the potential for creating a significant amount of noise.

7. Special requirements - Should be isolated, yet easily supervised.

DINING ROOM

1. Square footage requirement - family style seating for 95.
Total - 1350 s.f.

2. Hard requirements - Tables, chairs, fireplace, waitress station, durable surfaces, exposed structure, exposed stonework, high ceiling, wood floor.

3. Soft requirements - Spacious, dramatic space, yet comfortable for a seating of only 20 guests.

4. Solar and view orientation - View of Glacier peaks required, southern exposure desired.

5. Adjacency requirements - Entry, guest living room, kitchen. Public rest rooms nearby.

6. Noise environment - Noise producing when occupied.

7. Special requirements - High windows.

KITCHEN

1. Square footage requirement.
Total - 800 s.f.

2. Hard requirements - Stoves, walk-in refrigerator, counter space, work stations for 3 cooks and a baker, freezers, dish washing station, produce sink, hand washing sink, janitors space with sink, receiving area, dish storage, food storage, general storage, secured wine storage, waitress work station, deep fat fryer, large capacity mixer, chefs office, telephone, durable, easy to clean surfaces.

3. Soft requirements - Well lit, clean environment.

4. Solar and view orientation - Minimal solar exposure.

5. Adjacency requirements - Dining room, employee rest room, garbage dumpster.

6. Noise environment - This space generates a great deal of noise, it should be isolated from quiet spaces.

7. Special requirements - This space requires an exterior access for deliveries and trash removal. Consult codes for additional requirements.

BAR/SUN ROOM

This space will function as the primary solar gain component for the lodge. It will be a place to have early morning coffee, relax in the sun and to socialize before and after dinner.

1. Square footage requirement.
Total - 325 s.f.

2. Hard requirements - Thermal mass, tables, chairs, wood burning stove.

3. Soft requirements -Intimate, comfortable.

4. Solar and view orientation - Solar orientation above all, view is also highly desirable.

5. Adjacency requirements - Dining room.

6. Noise environment - Will be a minor noise generation source.

7. Special requirements - None.

MEETING ROOMS

1. Square footage requirement - 50 people conference layout, 80 people theater seating.
Total - 800 s.f.

2. Hard requirements - Tables, chairs.

3. Soft requirements - Business-like, yet not sterile.

4. Solar and view orientation - Northern orientation, some windows for the view.

5. Adjacency requirements - Rest rooms nearby.

6. Noise environment - Needs to be isolated from noise producing areas.

7. Special requirements - Divisible into two separate rooms.

GUEST ROOMS AND PRIVATE BATH

1. Square footage requirement - 300 to 500 sq. ft. depending on room type.
-Three suites at 500 s.f. each (One queen and two single beds).
-Three singles at 375 s.f. each (One queen bed).
-Three doubles at 450 s.f. each (Two queen beds).
-Total - 3925 s.f.

2. Hard requirements - Beds, end tables, lamps, writing desk, table and chairs, couch and / or easy chairs, reading lamps above beds, closet, bathroom fixtures.

3. Soft requirements - Warm, comfortable, quiet space.

4. Solar and view orientation - View is important, but views of Glacier peaks are not mandatory.

5. Adjacency requirements - None required.

6. Noise environment - Isolate from noise sources.

7. Special requirements - Suites should receive special attention - vaulted ceilings, balconies, etc.

EMPLOYEE HOUSING (2)

1. Square footage requirement - Two small suites with living room, bedroom, bathroom and storage (70 s.f.) at 450 s.f. each.
Total - 900 s.f.

2. Hard requirements - Required furnishings, durable finishes, carpet in living and bedrooms, and baths.

3. Soft requirements - Well lit, warm, comfortable atmosphere, sense of privacy.

4. Solar and view orientation - Should have a good view, although not necessarily of the peaks. Should have some direct solar exposure.

5. Adjacency requirements - None required.

6. Noise environment - Should be protected from sources of noise.

7. Special requirements - Should be private, yet accessible to guests in case of emergency.

PUBLIC REST ROOMS

1. Square footage requirement - 125 s.f. each.
Total - 250 s.f.

2. Hard requirements - Toilets, urinals, sinks, counters, partitions and accessories, durable surfaces, linoleum flooring.

3. Soft requirements - Clean, well lit.

4. Solar and view orientation - none required.

5. Adjacency requirements - Entry, lobby, dining room.

6. Noise environment - Noise producing - quiet rooms should be isolated.

7. Special requirements -

LAUNDRY ROOM

1. Square footage requirement.
Total - 300 s.f.

2. Hard requirements - 3 commercial sized washers, 3 commercial sized driers, a table for sorting and folding linen, clean linen storage, laundry supply storage, paper supply storage, cart storage, large sink, hand washing sink, easy to clean surfaces.

3. Soft requirements - Clean, bright atmosphere.

4. Solar and view orientation - Exterior view desired.

5. Adjacency requirements - None.

6. Noise environment - Noise producing space, isolate from quiet spaces.

7. Special requirements - Should be located on a level with direct on-grade access to facilitate use of carts to service cabins.

MECHANICAL SPACE

1. Square footage requirement -
Total - 200 s.f.

2. Hard requirements - Concrete floor with drain, easy to clean, durable surfaces.

3. Soft requirements - Should be well lit.

4. Solar and view orientation - None.

5. Adjacency requirements - Should be centrally located.

6. Noise environment - Can be a significant noise producing area. Should be isolated from other spaces requiring quiet.

7. Special Requirements - Must be in an easily serviceable area. Should be located in an area that allows the moving of equipment.

CIRCULATION SPACE

1. Square footage requirement - Approximately 15 percent of the overall building square footage.
Total - 2000 s.f.

2. Hard requirements - Soft, acoustical, durable materials. Lighting should be given special consideration here. Decorative items such as paintings, photos, and maps would be a plus here. Wainscotting would help to protect the wall surfaces.

3. Soft requirements - Should have a comfortable, clean ambience.

4. Solar and view orientation - Should have views and natural lighting wherever possible. Provide "orientation" with the out-of-doors when possible.

5. Adjacency requirements - Should be adjacent to everything!

6. Noise environment - Foot traffic can generate a great deal of noise. Finish material selection should take this into consideration.

7. Special Requirements - Halls and corridors constitute a large part of the overall "guest experience" and should be designed with this in mind. Finish materials, decorations and lighting techniques play an important part in the overall design in this area.

ADDITIONAL BUILDINGS

GUEST CABINS

1. Square footage requirement - 10 cabins total :
-Two single cabins at 400 s.f each (one queen bed in each unit).
-One 800 s.f. duplex with two 400 s.f. single units (one queen bed in each unit).
-Two 800 s.f. "deluxe" cabins, each with two bedrooms, living room and 1 1/2 baths (one queen in one bedroom, two queens in one bedroom and two singles in the living room).
-Five 1000 s.f. duplex cabins, each with two 500 s.f. suites (one queen and two singles in each unit).
Total - 8200 s.f.

2. Hard requirements - Beds, couches, tables and chairs, bathroom accessories and wood burning stoves.

3. Soft requirements - Warm, cozy, rich ambience.

4. Solar and view orientation - View and solar orientation will vary from cabin to cabin. However, it is desirable to maximize solar exposure and the view of the peaks.

5. Adjacency requirements - None.

6. Noise environment - Should be protected from noise producing sources.

7. Special requirements -

MANAGEMENT LODGING
Two bedrooms, one and one half baths, kitchen, living room, utility room and ample storage.

1. Square footage requirement.
Total - 1100 s.f.

2. Hard requirements - Stove, refrigerator, simple, durable finishes, wood burning stove.

3. Soft requirements - Clean, well lit with a homey feeling.

4. Solar and view orientation - South sun highly desireable, a view of the peaks is also desirable.

5. Adjacency requirements - None

6. Noise environment - Should be located in a quiet spot.

7. Special Requirements - Should be located in an accessible, but private spot.

EMPLOYEE HOUSING
Housing for eight to ten employees - two complete one bedroom apartments with kitchenette and living room. One dormitory unit with four dormitory style rooms (two persons per bedroom), living room, kitchenette and four baths.

1. Square footage requirement -
Apartments - 130 s.f. bedroom, 140 s.f. living room, 100 s.f. kitchenette, 80 s.f. bathroom and 100 s.f. storage for a total of 550 s.f. each.

Dormitory unit - four 150 s.f. bedroom, two 100 s.f. bathrooms, two 50 s.f. bathrooms, 200 s.f. living rooms, 100 s.f. kitchenette and 200 s.f. storage. Total for the dormitory unit is 1400 s.f.

Total - 2500 s.f.

2. Hard requirements - Furniture, kitchen appliances, extremely durable finishes.

3. Soft requirements - Clean, well lit, comfortable and private.

4. Solar and orientation - Some south sun.

5. Adjacency requirements - None.

6. Noise environment - Can be a large noise producing source. Should be located well away from guest cabins for this reason. A need for interior acoustical privacy exists.

7. Special Requirements - Should be accessible to the ranch, but located in a relatively private area.

SPA WITH CHANGING ROOM
Sauna and whirlpool with men's and women's changing rooms.

1. Square footage requirement - Sauna; 80 s.f. Changing room; 200 s.f. 280 s.f. total

2. Hard requirements - Built-in benches, non-slip surfaces, chemical and janitorial storage.

3. Soft requirements - Clean, relaxing atmosphere.

4. Solar and view orientation - Direct southern exposure required, view highly desirable.

5. Adjacency requirements - Centrally located in complex.

6. Noise environment - Can be a noise producing area.

7. Special Requirements - Fencing and special signs required - consult codes for details.

SHOP & MAINTENANCE AREA

1. Square footage requirement - Room for one snow grooming machine, two snowmobiles, one parked vehicle, tools, equipment and storage. Total - 1500 s.f.

2. Hard requirements - Secure, wood burning stove with back-up heating system (minimal), concrete floor with drain, durable, damage and stain resistant materials. Special room for snow grooming machinery with ample heat and very good drainage.

3. Soft requirements -

4. Solar and view orientation - Southern exposure would be nice, but it is not a requirement. An exterior view, but not of the peaks is required.

5. Adjacency requirements - Should be located close to the cross-country trail head.

6. Noise environment - Can be a noise producing area. Areas requiring quiet should be isolated from the shop.

7. Special Requirements - Should be located so that it is out of the view of the guests.

OUTDOOR SPACES

BAR-B-QUE & OUTDOOR MEETING SPACE

Outdoor "hub of the universe". This area is not only a place for eating, but it is also an outdoor entertainment area, dance area and meeting "room".

1. Square footage requirement - Requires a fairly large, cleared, level outdoor area.

2. Hard requirements - Picnic tables to serve 100 (approx. 15), bar-b-que pit, out houses or convenient rest rooms in vicinity.

3. Soft requirements - Relaxed, fun atmosphere.

4. Solar and view orientation - A view of the peaks and direct southern exposure are required.

5. Adjacency requirements - Must be reasonably close to a rest room facility. This area should be somewhat removed from the rest of the complex, yet close enough so that the guests can find their way back to their cabins in the dark after a few beers!

6. Noise environment - This area is capable of producing a large amount of noise when in use. Should be somewhat isolated from the lodge and the cabins for this reason.

7. Special Requirements -

CHILDREN'S PLAY AREA

1. Square footage requirement - 200 s.f.

2. Hard requirements - Play equipment, soft ground material such as sand or redwood chips to absorb impact from falls.

3. Soft requirements - Sunny, fun atmosphere.

4. Solar and view orientation - Southern orientation required, view is secondary.

5. Adjacency requirements - Should be located close to a rest room facility.

6. Noise environment - This area can produce a moderate amount of noise, primarily in the day time.

7. Special Requirements - This area should be located near the lodge and the cabins for supervision purposes, yet should be located well away from roads.

TRAILHEAD AREA - Located near main lodge, but away from vehicular traffic. Functions as the "entryway to the out-of doors".

1. Square footage requirement - 200 s.f.

2. Hard requirements - Signage.

3. Soft requirements - None.

4. Solar and view orientation - None.

5. Adjacency requirements - Lodge and Rental Shop.

6. Noise environment - Minimal.

7. Special Requirements - This area should be located in a highly visible location and be recognizable as the start of the hiking and ski trails.

Climate

V. THE CLIMATE

SUMMARY AND DESIGN IMPLICATIONS

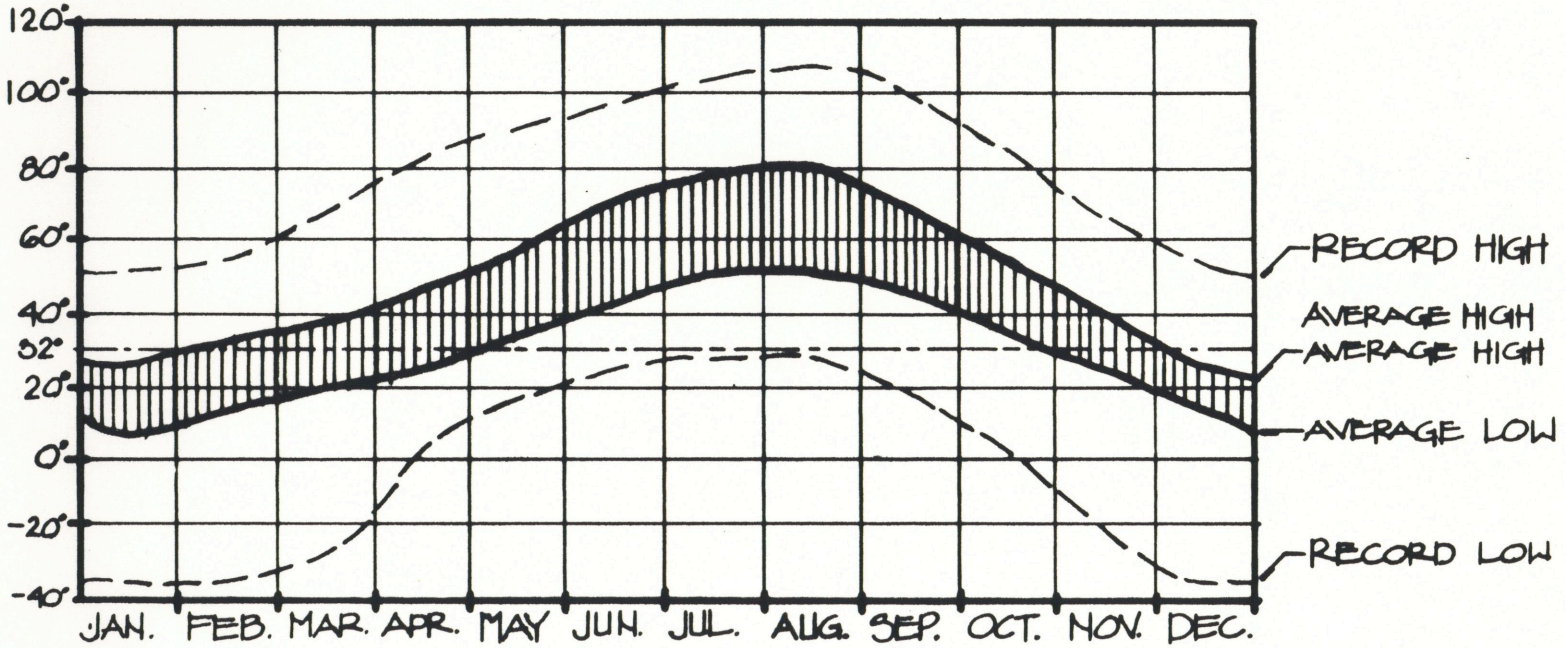
The climatological data included in this document was recorded at Glacier Park International Airport in Kalispell, Montana approximately 32 miles southwest of the site. The data was compiled between the years of 1949 to 1979.

The climate of Kalispell, Montana is characterized by wide swings in temperature recording average summertime highs in the 80's and wintertime lows in the teens. The average annual snowfall is one of the highest in the state at 67 inches. The normal annual precipitation is 16 inches. Because of Kalispell's proximity to Flathead Lake and the Continental Divide it experiences numerous cloudy days, the months of January, February, March, April, November and December have an average of less than 5 clear days per month.

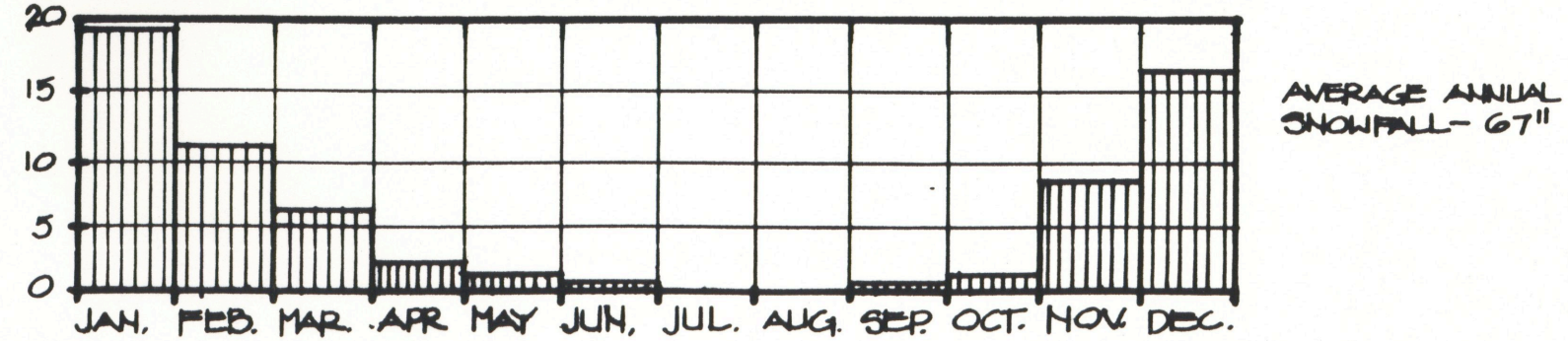
The average relative humidity is higher in Kalispell than most other Montana locations but remains low throughout the year. The average annual wind speed is one of the lowest in the state at 6.7 miles per hour with the prevailing direction from the west. Kalispell has a large average annual heating degree days of 8,554. The cooling degree days are 117.

The design implications of the climate call for a response to the cold climate and to the potential impacts of the snow and the cloudiness. The design should respond to the cold by minimizing wall surfaces, avoiding the placement of glazing on the north side, berming where possible and utilizing an efficient building shape. The design should respond to the snow by providing protected entrances, stairs and walkways. The cloudiness presents a special problem in that the months where solar heat would be most beneficial there is little sun. The building should respond to the cloudiness by being open to whatever natural light that is available.

• TEMPERATURE (DEGREES F.)

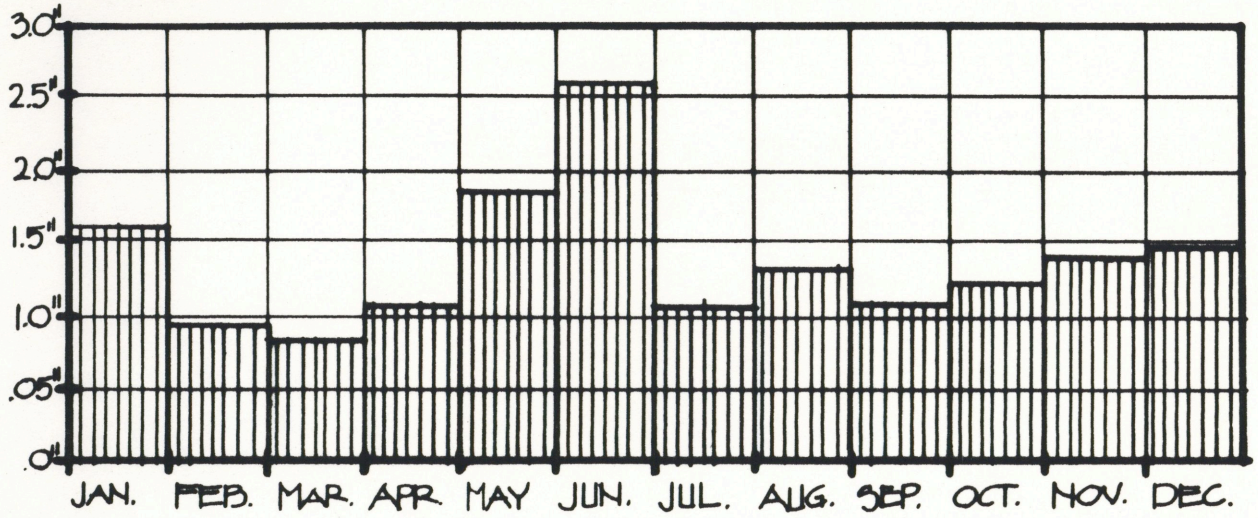


• AVERAGE SNOWFALL (INCHES)



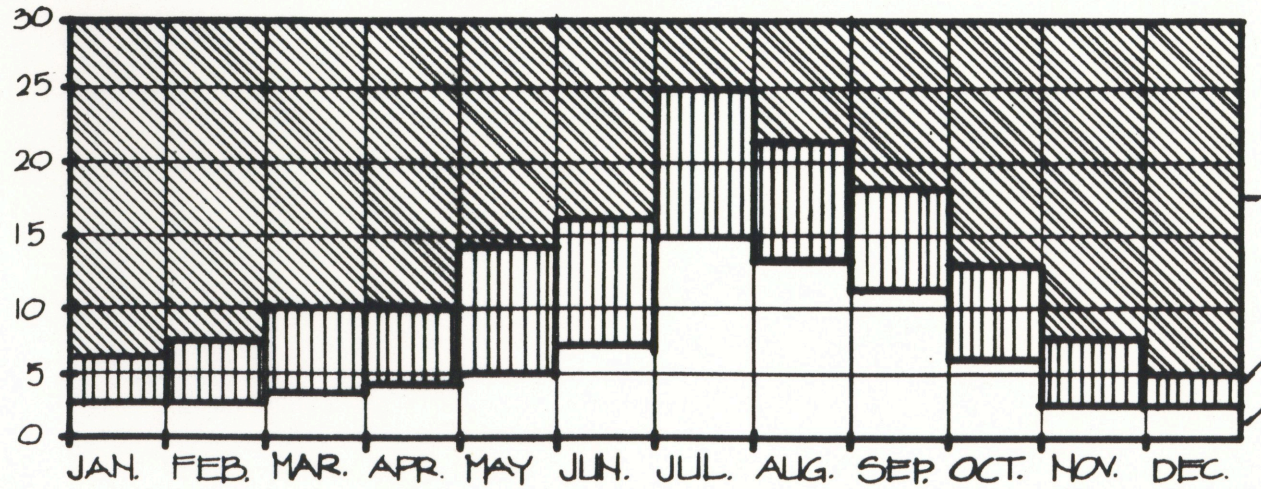
Climate

• NORMAL PRECIPITATION (INCHES)



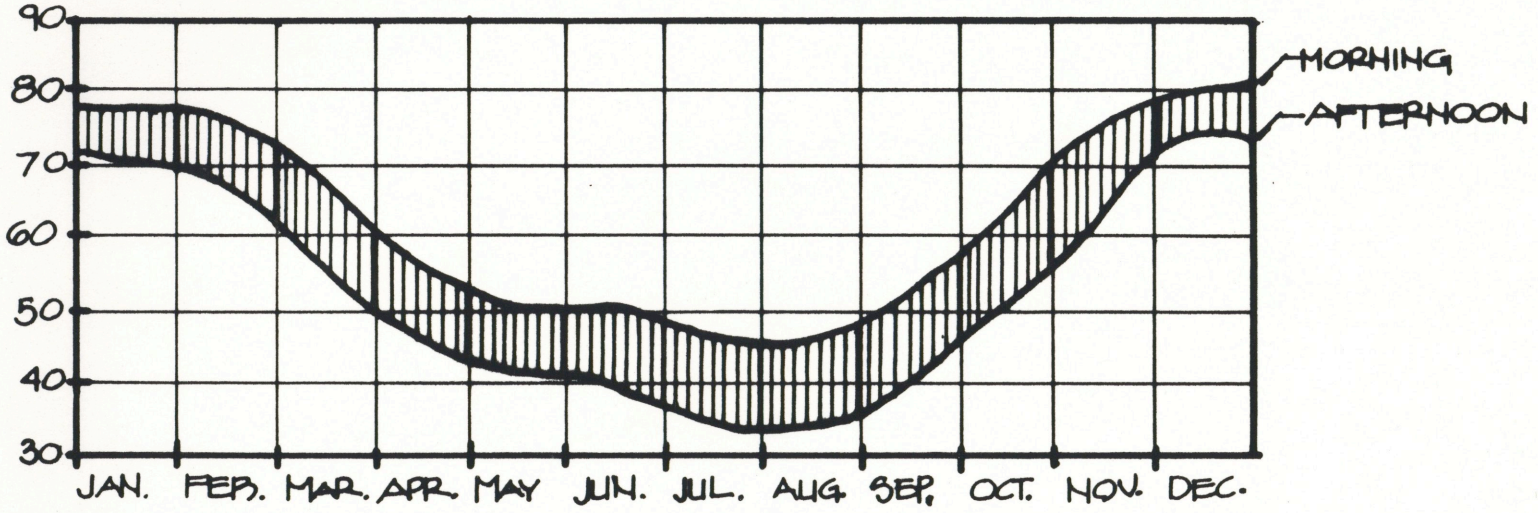
NORMAL ANNUAL PERCIPITATION – 16.24"

• SKY COVER (DAYS)

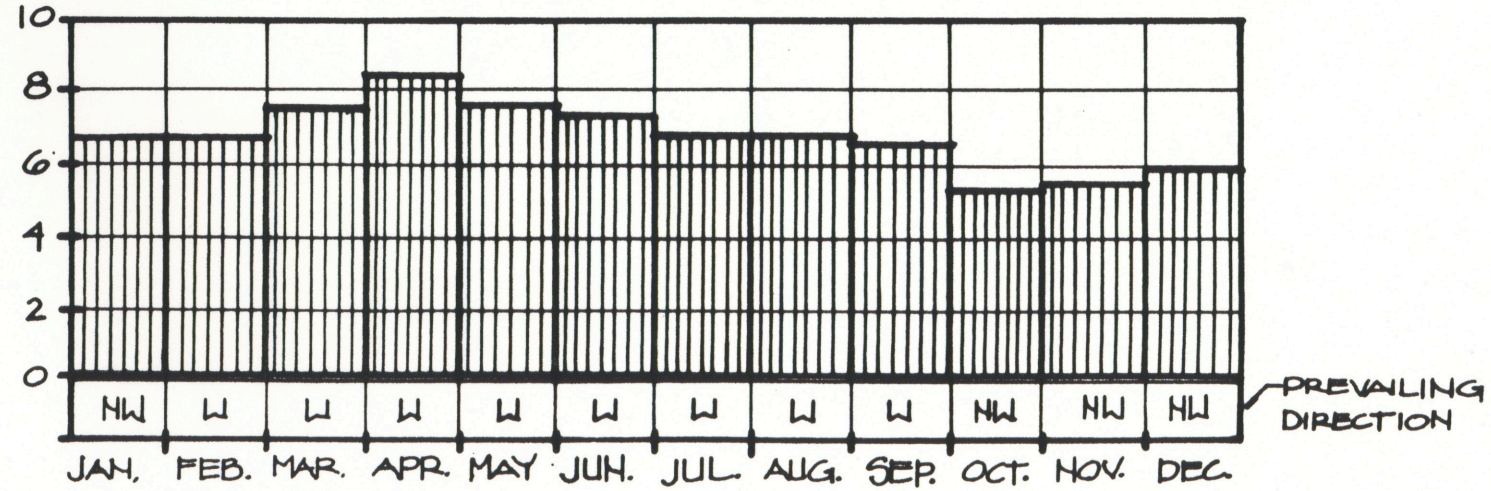


Climate

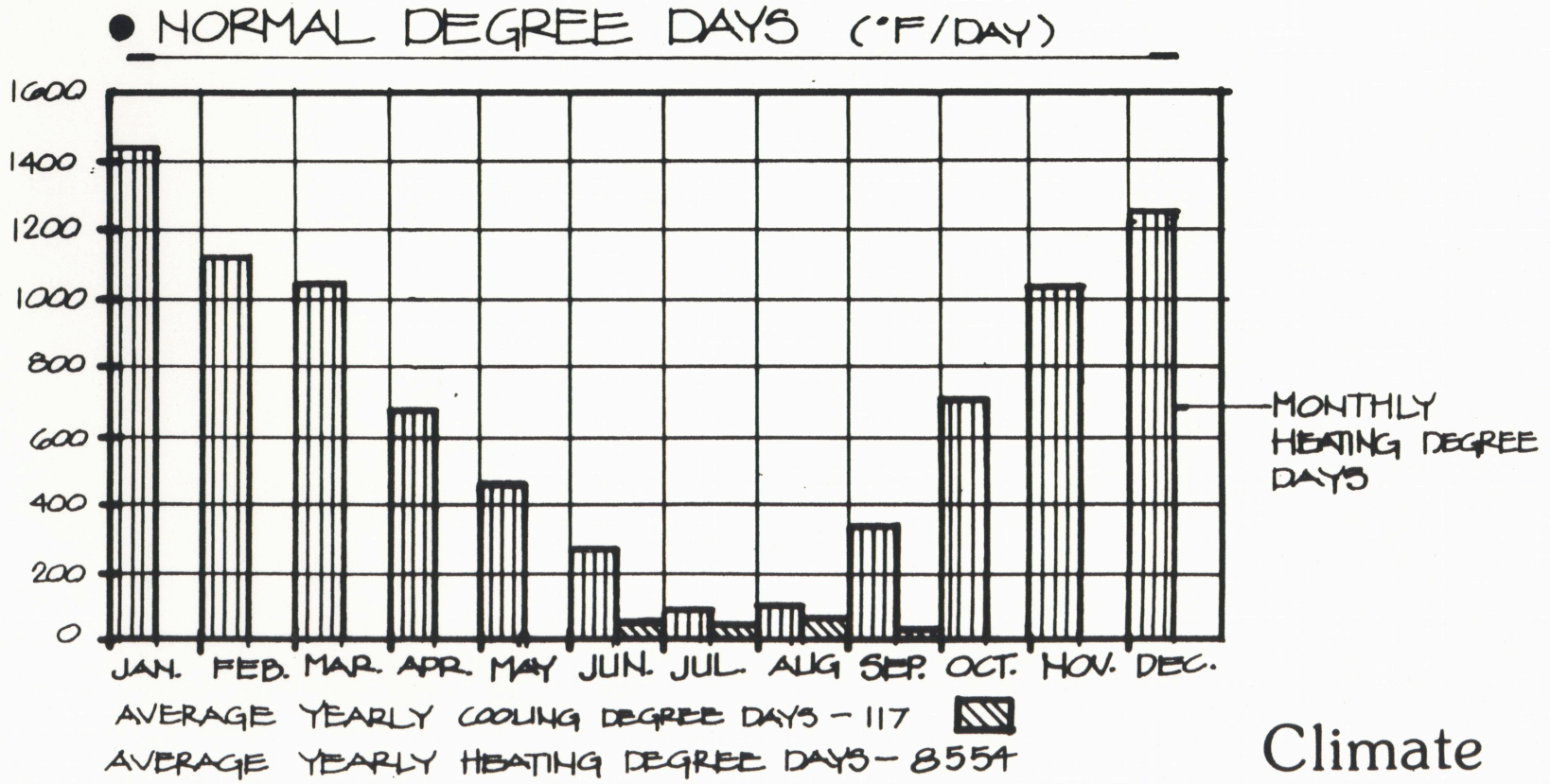
• AVERAGE RELATIVE HUMIDITY (%)



• WIND – AVERAGE SPEED (MPH)



Climate


● NORMAL DEGREE DAYS (°F/DAY)
1600
1400
1200
1000
800
600
400
200
0
JAN. FEB. MAR. APR. MAY JUN. JUL. AUG SEP. OCT. NOV. DEC.
MONTHLY HEATING DEGREE DAYS
AVERAGE YEARLY COOLING DEGREE DAYS - 117
AVERAGE YEARLY HEATING DEGREE DAYS - 8554

Climate

Site

VI. THE SITE

A. THE LOCATION, HISTORY & NATURAL FEATURES

The site is located on the eastern slopes of Teakettle mountain, eight miles west of West Glacier, Montana (illustration 1). The site is presently owned by Carrol and Myrna Wright, who purchased it as part of a 645 acre tract of land known as the Rebe Ranch in 1968. The Rebe Ranch was built in the early 1940's and consisted of one house, two barns and a workshop (ill. 2 & 3). The Wrights constructed a 4000 square foot log home in the northwestern corner of the property in 1973 and also destroyed one of the barns (ill 4). In 1982 the Wrights constructed a second smaller house located southwest of the first house. In 1984 the Wrights subdivided the western 440 acres of land into 20 acre parcels and placed the land on the market. To date, six of the parcels have been sold.

The site is an 80 acre rectangular piece of land and is one half mile long by one quarter mile wide and is the eastern half of the south east quarter of section 13 of the "Hungry Horse" quadrangle (ill. 5 and 6). The site is contiguous with Flathead National Forest land on both the north and south borders, and it is bounded by private land on the east and west sides. There are no existing structures on the site.

Access to the site will be created by upgrading an existing logging road that connects with the existing Forest Service road. The access road turns south off of the Forest Service road and crosses the creek, the road then turns east and crosses through a right-of-way on the adjacent property. The road passes through the site approximately 200 to 300 feet south of and parallel to the northern property line (ill. 7). The existing logging road has a very gradual grade and would be passable in winter if plowed. The access road continues east from the site, through the adjoining property and rejoins Rebe road. Direct access from the east is not possible due to the lack of deeded right-of-away, and the fact that the gradient of the road is too steep for winter passage.1

Several prominent geological features of Glacier National Park are visible from the site. From the Wrights house it is possible to see The Garden Wall (the Continental Divide), Mount Cannon, Mount Brown, Bearhat Mountain and Edwards Mountain (ill. 8). The view is framed by the Apgar Mountains to the north and the Belton Hills to the south. The "optimal view corridor" is an

area of the site where view is anticipated to be the same as the view at the Wrights house (ill. 9). The other areas of the site are expected to have a view of some of the peaks, but with part of the view blocked by either the Belton Hills or the Apgar Mountains. At present it is difficult to see the peaks from the site due to the heavily wooded nature of the site. It is anticipated that a meadow will have to be cleared to open up the view.

The site slopes from south to north and has an average overall slope of 7.5%. The slope is consistent from the east to the west side.

The soil composition of the site is unknown, however the Wrights reported that the soil found during the excavation of the log house included both clay deposits and a gravel mix.2 The are no known rock formations on the site.

The microclimate of the site is slightly different than that of the recording station in Kalispell. The site is somewhat cooler due to the higher elevation and the western shading caused by Teakettle Mountain. The site receives more snow and keeps it longer, again due to the higher elevation and western shading effect. The location of the site, on the leeward side of Teakettle Mountain, shelters it from the effects of the wind.3

The site was burned in the Half Moon Fire of 1929 which started in Columbia Falls and spread over Teakettle Mountain to Glacier Park. The fire consumed over fifty thousand acres of private and Glacier Park lands in total, including most of Apgar Flats at the west end of Lake McDonald.4 The Teakettle Mountain area is said to have had one of the oldest and largest stands of Cedar and Larch in the entire northwestern Montana area. Following the fire a logging camp and sawmill were built on property adjacent to the site and a salvage logging operation was established. The logging continued on the site and surrounding area from 1929 to the early 1940's.5 Today, there are numerous reminders of this period including numerous stumps, burned tree "shells" and traces of old logging roads -- dubbed "trails" by Mr. Wright (ill. 10).

The site has made a dramatic recovery from the fire and today is heavily wooded with several small natural meadows. The average height of the trees is 40 to 60 feet. To date, ten species of trees have been identified on the site. The trees that have been identified are;

1. Western Cedar
2. Quaking Aspen
3. Balsam Poplar
4. Western White Pine

5. Douglas Fir
6. Lodgepole Pine
7. Grand Fir
8. Western Larch
9. Engleman Spruce
10. Mountain Alder

The distribution of the trees varies greatly throughout the site (ill. 11). The northern section of the site generally has a mix of all 10 species of trees. This area supports a great deal of brush and under growth mainly because the tree canopy allows some sunshine to penetrate. The southern end of the site is dominated by dense stands of 4 to 6 inch diameter Lodgepole Pine with a few isolated groves of Quaking Aspen. There are many fallen Lodgepole Pine trees in this area. While the fallen trees make travel on foot difficult at present, they will supply a seemingly endless supply of firewood in the future. The southeastern corner of the site, approximately 1000 square feet, was logged within the last two years and is in need of rehabilitation.

There is abundant wildlife on the site and in the immediate area. Mr. Wright reports to have seen mountain lion, bobcats, elk, moose, black and grizzly bear, coyote, whitetail and mule deer and numerous smaller mammals on his property.6 The existence of grizzly bears in the immediate vicinity could possibly cause summer use restrictions on the Forest Service Land.

The building site that has been selected from the overall site is a 25 acre area that is located in the northeastern corner of the overall site. The building site was selected following site analysis for the overall potential of the area. The area is located in the optimal view corridor, it has excellent existing vehicular access, it has good mixed timber coverage and it slopes in the direction of the view. The building site also encompasses an existing meadow and level area which will be an ideal spot for cross country ski instruction. The Forest Service land where the majority of ski and hiking trails will originate is adjacent to the building site, making the recreational access excellent.

B. Design Implications

There are both positive and negative design implications that can be drawn from the site. On the positive side, it is a wonderfully beautiful site. The design should respond to the site and utilize the natural beauty to enhance the

built forms. The view is one of the greatest assets of the site. The design should maximize the view potential by opening up to and orienting towards the view. The design should work with the trees to help soften the built forms and help to integrate them with the site. The design should work with the slope to create diversity in the buildings, to expand the view potential and to lessen the impact on the site. It is a very natural and rustic site and the building should reflect this.

On the negative side, the site has the potential for feeling dark and remote. The site, at present, is heavily wooded and is located 1/2 a mile from the nearest "neighbor". In response to this the design should incorporate sun and natural light wherever possible. Tree thinning will also help to ease the feeling of darkness. The overall site design should attempt to promote security by avoiding the isolation of individual cabins.

FOOTNOTES - SITE

1. Telephone interview with Carrol Wright, property owner, West Glacier, Montana. 23 January 1988.

2. Carrol Wright. 23 January 1988.

3. Carrol Wright. 23 January 1988.

4. C.W. Buchholtz, Man in Glacier, (West Glacier: Glacier National History Association, Inc., 1976), p.63.

5. Carrol Wright. 23 January 1988.

6. Carrol Wright. 23 January 1988.

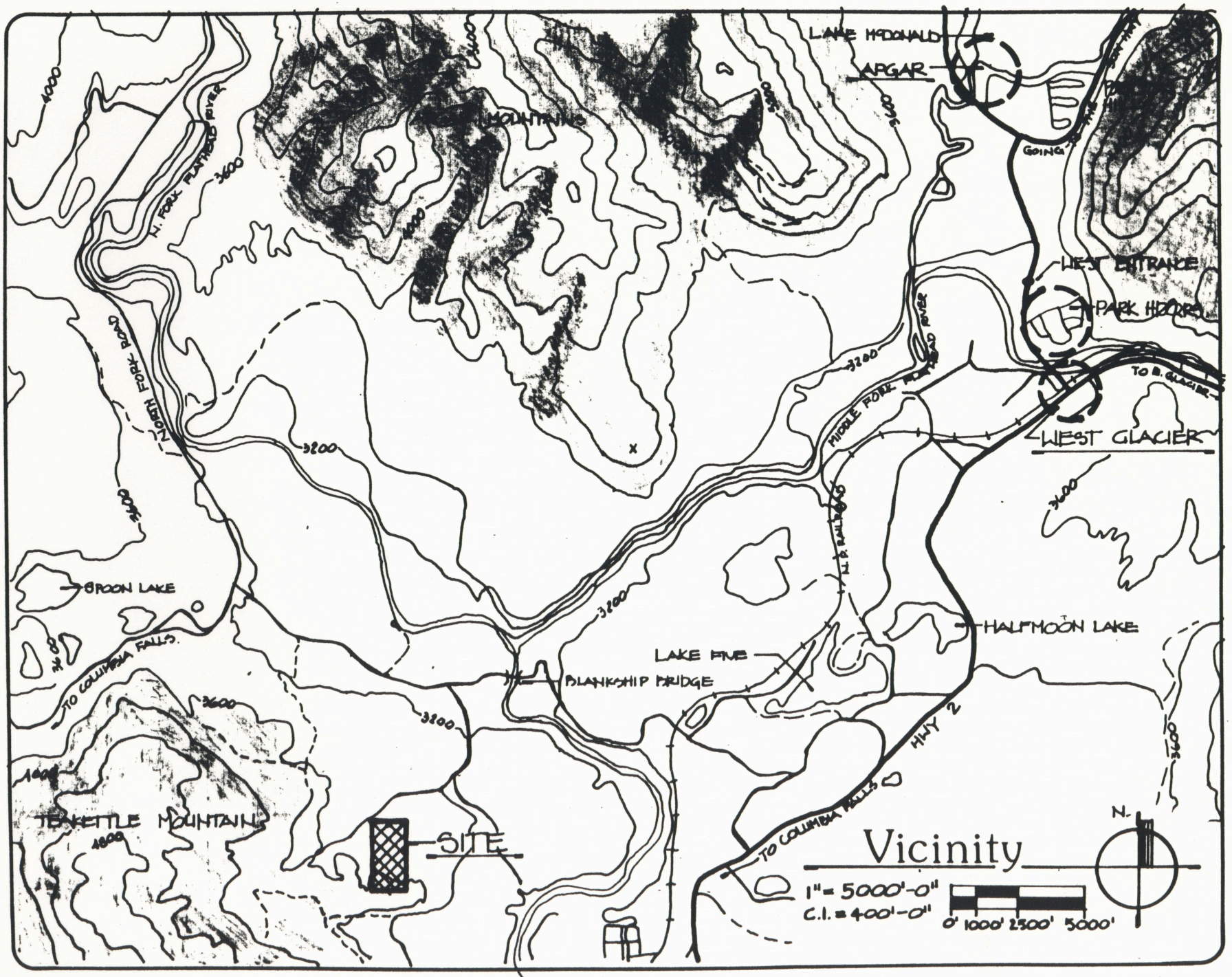


Illustration 1.- Regional Vicinity Map.



Illustration 2.- Photo,
Existing Barn.



Illustration 3.- Photo,
Existing Cabin.



Illustration 4.- Photo, Existing Log House



Illustration 8.- Photo View.

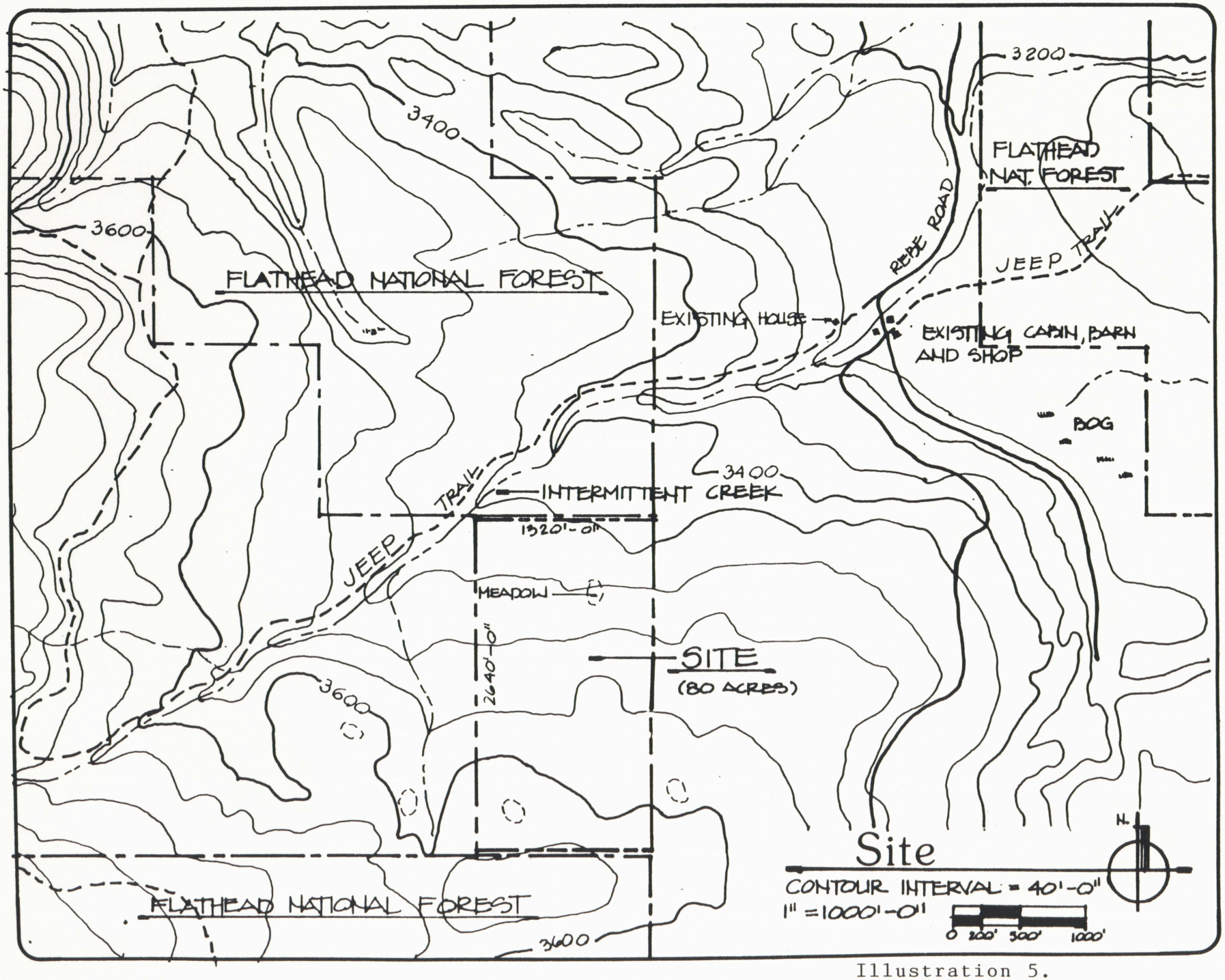


Illustration 5.

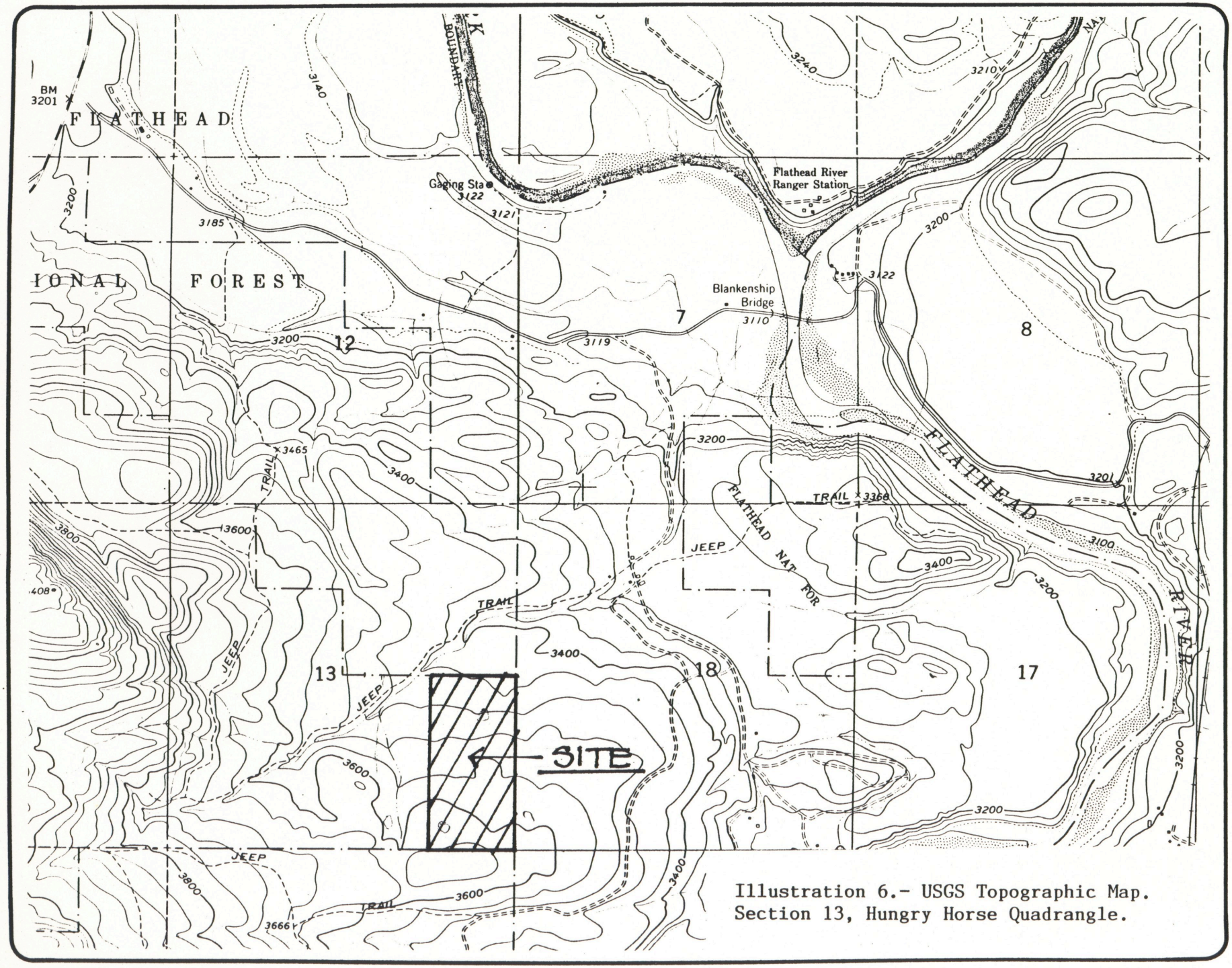


Illustration 6.- USGS Topographic Map.
Section 13, Hungry Horse Quadrangle.

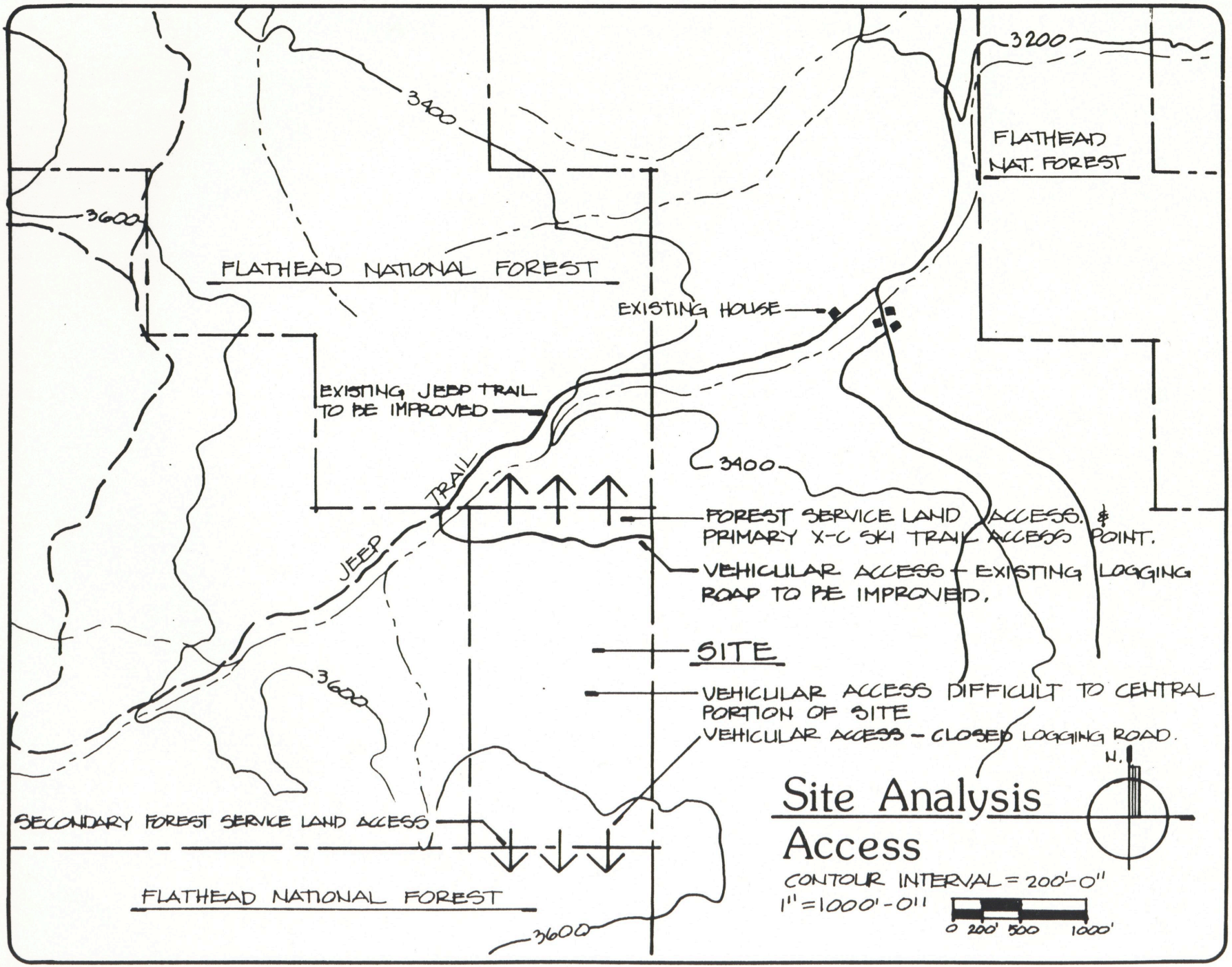


Illustration 7.

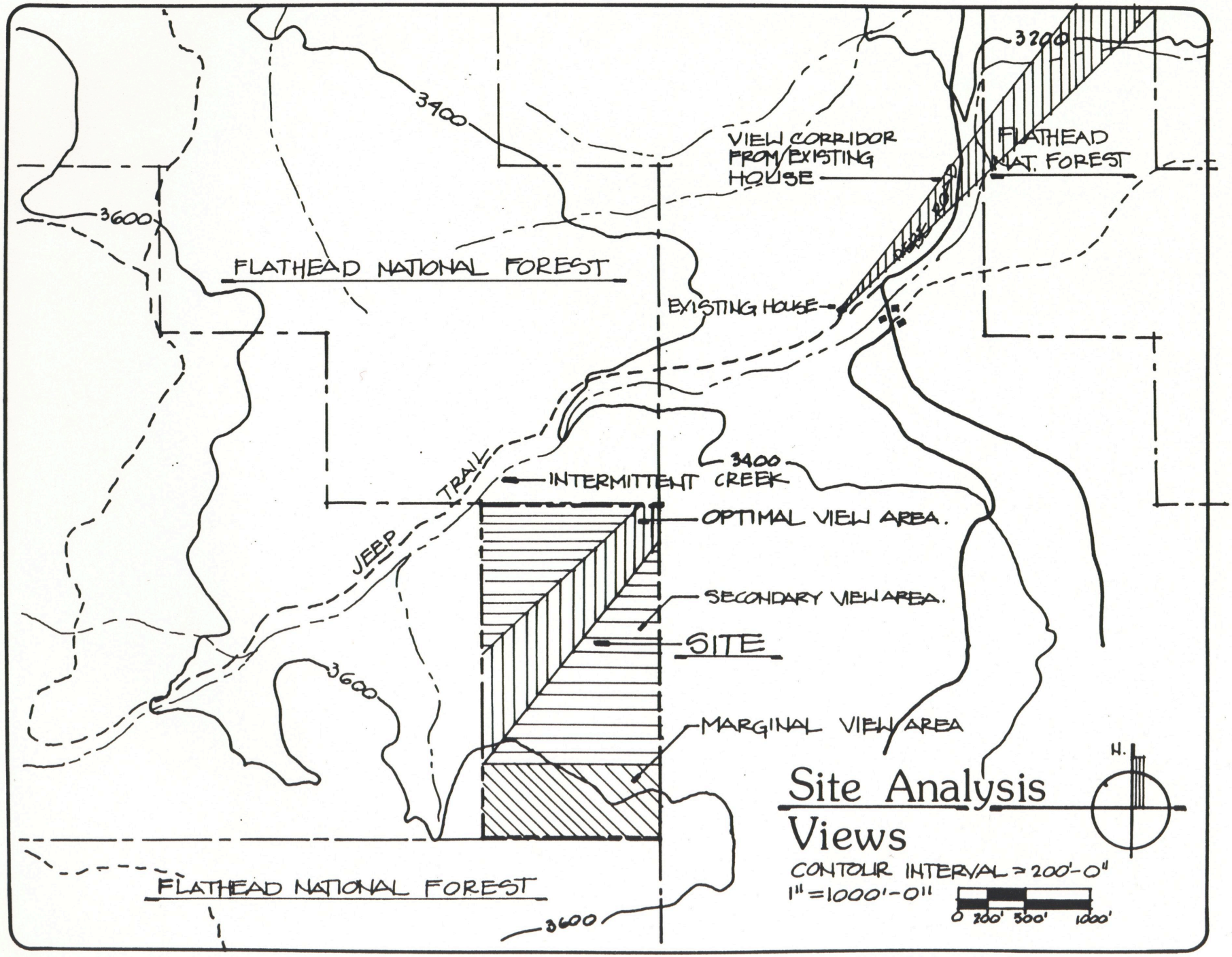


Illustration 9.

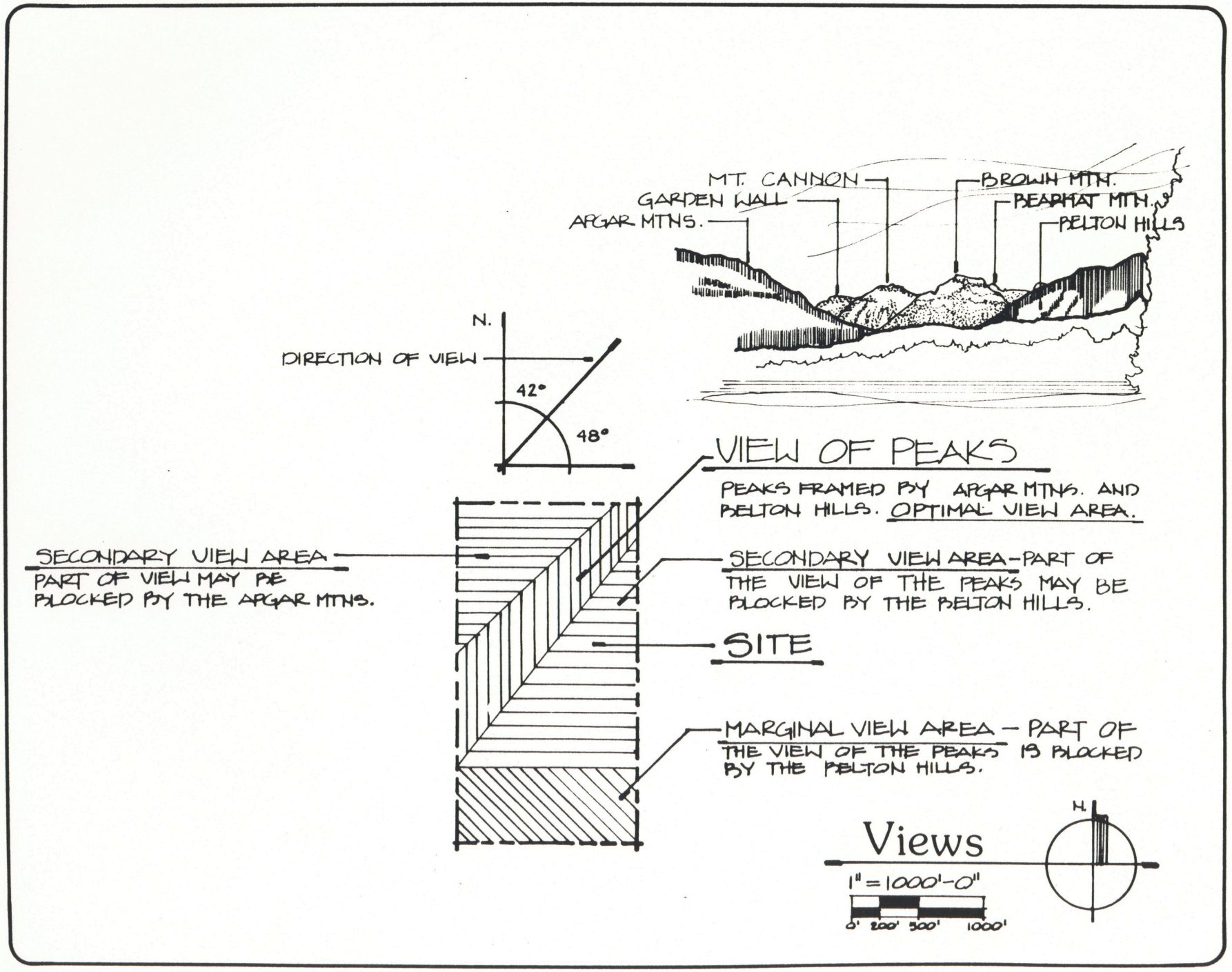


Illustration 9A.



Illustration 10. - Photo, Tree Stumps.

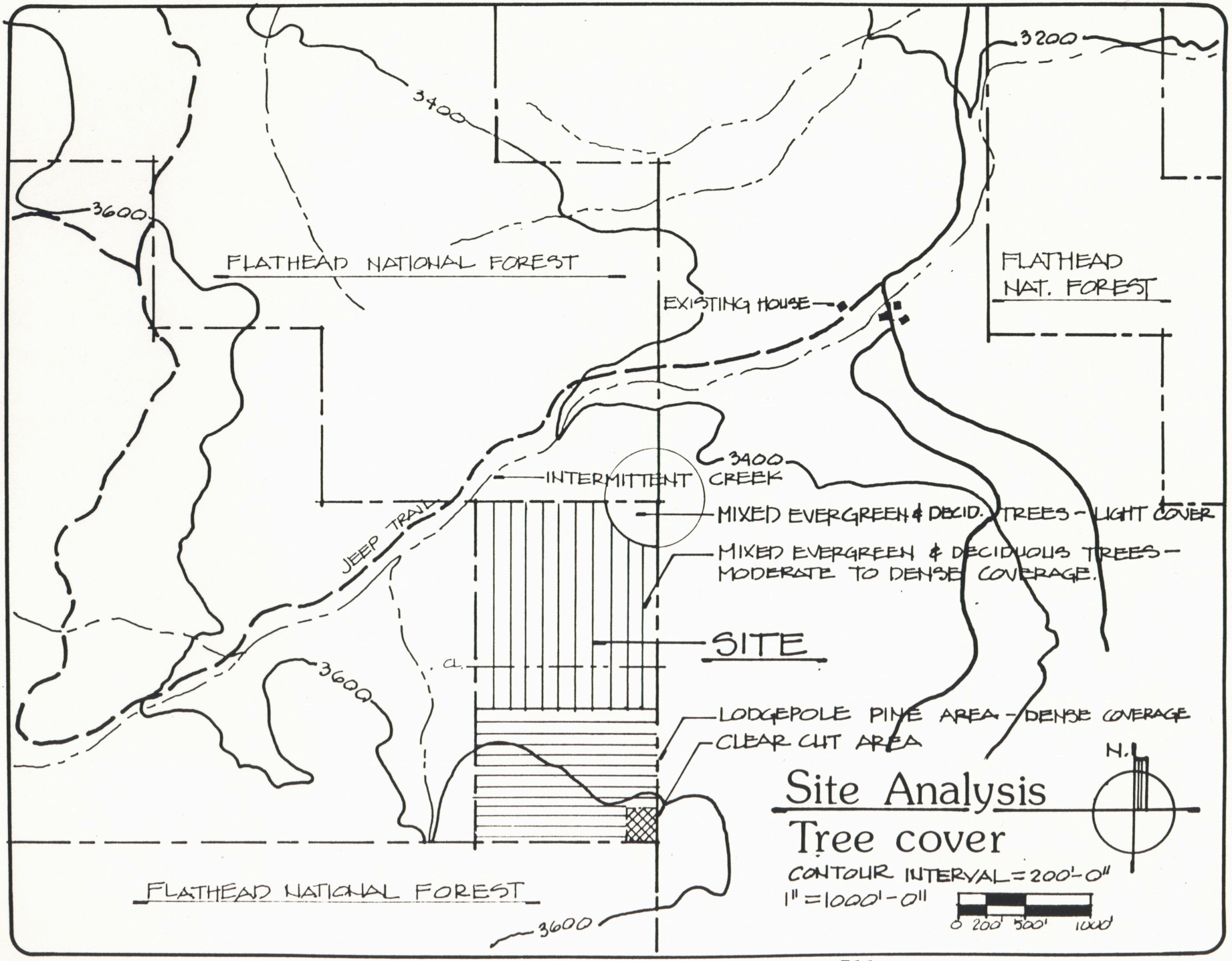


Illustration 11.

Context

VII. THE CONTEXT

The context of the project is the Glacier Park region which includes Glacier National Park, the northern end of Flathead Lake, the Blackfeet Indian Reservation and the cities of West Glacier, Whitefish and Kalispell, Montana. The region is basically comprised of the area that surrounds the site and contributes complementary activities, goods and services. Glacier National Park is the major drawing point of the Lodge and as such the Park will be the focus of this section.

A. THE HISTORY

There were numerous Indian tribes living in the area of Glacier Park prior to the "discovery" of the area by Hudson Bay Traders in the 1770s.1 On the western side of the Continental Divide tribes of the Kalispell, Kootenai, Flathead, Pend d'Oreille and Gro Ventre lived. It is believed that these groups occasionally used the mountain passes of Glacier to travel to the east to hunt bison and engage in raids. The Blackfeet Indians occupied the eastern side of the Continental Divide. The Blackfeet Indians were a very large, powerful group and physically controlled a vast area of what is today northern Montana. Little is known regarding exact Indian activity in Glacier Park as most of Indian history is passed down through legends and much of the factual information, such as time and location, has been lost.2

The Blackfeet Indians were a large deterrent to white exploration and occupation of the Glacier Park region during the beginning of the 19th century. The Blackfeet were openly hostile to trappers and traders traveling through the region attacking parties and burning settlements that were established. The first fort to be permanently established in the Blackfeet territory was Fort Benton in the early 1840s located far to the southeast of the Glacier Park region. The Blackfeet hold on the area began to loosen in the mid-19th century following several outbreaks of smallpox which decimated the tribe. The 1880s saw the virtual extinction of the bison which had been the mainstay of the Blackfeet diet. The Blackfeet were reduced to a weak and starving group confined to a reservation and dependant on the American government for subsistence by the end of the century.3

The Blackfeet Indian Reservation today forms the eastern boarder of Glacier National Park. The Blackfeet Reservation included the eastern half of

the Park until 1895 when it was purchased by the Federal Government.4 The Blackfeet Indians are the Indian group most closely associated with Glacier Park, mainly because of their long time presence and involvement in the area. Many of the Park's features bear Blackfeet names, however most of these names are not authentic.5

White influence in the Glacier Park region began to increase throughout the 19th century as the Blackfeet domination decreased. The region became part of the United States in 1803 with the Louisiana Territory purchase. Lewis and Clark traveled through the area to the south of Glacier Park on their explorations to the west coast. On the return trip eastward Lewis traveled northward on the eastern side of the Rockies. He viewed Glacier's peaks from afar and intended to explore the headwaters of the Marias River, which originates in Glacier Park, but an encounter with hostile Blackfeet Indians caused a hasty retreat. In 1818 the 49th parallel was established as the border between Canada and the U.S. for the area east of the Continental Divide to the Lake of the Woods in Minnesota. In 1846 the 49th parallel also became the border line for the land west of the Continental Divide. The Glacier Park region west of the Continental Divide was, at different time periods, part of the Oregon Territory (1848-1853) and the Washington Territory (1853-1864). In 1864 the region became part of the Montana Territory. The portion of the Glacier to the east of the Divide became part of the Blackfeet Indian Reservation in 1851 through the Fort Laramie Treaty. The Blackfeet sold their land to the U.S. government in 1895.6

The arrival of the Great Northern Railroad and mining explorations in the late 19th century helped to open up the Glacier Park area to the rest of the United States. While great hopes of "striking it rich" brought a rapid influx of prospectors onto the area in the 1880s and 90's most of the claims were abandoned by the turn of the century. The Great Northern Railroad, however, had an enormous and long lasting influence on the growth and development of the area.7.

The completion of the railroad over Marias Pass in 1891 made accessible a vast area that had previously been visited by only a handful of hardy "adventurers." The town of Belton, renamed West Glacier in 1949, started as railroad construction camp in 1891. Named for the camp cook, Andrew Belton, the town of Belton became the starting point for families arriving to settle the Lake McDonald area of Glacier. The area quickly attracted visitors and the

first hotel was built on the shore of Lake McDonald by the mid-1890's. John Muir visited the area at that time and wrote in his book "Our National Parks" : "Get off the track at Belton Station, and in a few minutes you will find yourself in the midst of what you are sure to say is the best care-killing scenery on the continent." 8

James J. Hill, the owner of the Great Northern Railroad, was concerned not only with the building of his railroad, but also with attracting visitors and settlers to the areas served by his line. When the Park was established in 1910 he launched a massive accommodation construction program designed to lure wealthy eastern visitors to Glacier Park. He envisioned Glacier as "the Playground of the Northwest" and he also saw it as a way to compete with the attractions advertised by his competitors, the Canadian Pacific and Northern Pacific Railways.9

The master plan that Hill implemented started with the visitor arriving at Midvale, later renamed East Glacier, and traveling by horseback over the Continental Divide to Belton. Strung between the two points, all a days ride apart, were a series of rustic stone and log chalets and "tepee camps". The first in his string of construction projects was the chalet complex at Belton completed in the summer of 1910 (ill. 1). The massive Glacier Park Lodge in Midvale was completed in 1913 and by 1915 the Great Northern Railroads travel literature boasted of the completion of the "Mammoth Mountain Hotel" at Swiftcurrent Lake (ill. 2). The system of overnight stops was completed by this time, and included three "tepee camps" and nine chalet complexes scattered throughout the mountains. Travel by horse remained the primary means of transportation through the park until the completion of the Going-to-the-Sun highway in 1933.10

The plans to construct a trans-mountain road through Glacier Park began in 1915. The park was surveyed and it was found that Logan Pass was the lowest and most practical east to west route. Road construction began in 1919 on the west side with a three mile stretch along Lake McDonald. Often called one of the 20th centuries greatest engineering feats, the Going-to-the-Sun road took 14 years to complete. Once opened the road became an immediate success with the motoring public and is credited with quadrupling Park visitation in the first three years following the roads completion.11

The "business" of educating visitors about the natural history of Glacier Park began in 1920's when M. P. Somes started a "Nature Guide" service near

Many Glacier Hotel. For a fee Somes led interpretive hikes and conducted lectures. Morton J. Elrod of the University of Montana later set up a service that included displays at the hotels, trained biologists that acted as hiking guides and a program of lectures. Elrod had gained Federal backing for the project and offered the service at no cost, thus forcing Somes out of business. It was through both Somes and Elrods innovative programs that the concept of "ranger naturalist" began in Glacier Park. In 1929 Superintendent J. Ross Eakin officially created the position of Chief Park Naturalist and appointed Dr. George Ruhle as the first person to occupy the position.11

The second World War brought Glacier Park visitation to a near stand-still dropping from 180,000 in 1941 to 23,000 in 1943. Most of the facilities catering to the motorists were closed by 1943, the trains no longer stopped at East or West Glacier due to wartime demands and bus transportation was curtailed. The Park Service decided during this period to re-evaluate Glacier Parks lodging facilities. Although only 30 years old, many of the chalets were deemed "beyond repair" and "eyesores" and destroyed. Sperry and Granite Park Chalets were the only two chalets within the Park that were spared, and that was probably due to the remoteness of both chalets. Outside of the park, the Belton Chalets were also saved. Post-war visitation soared to 300,000 visitors in 1947 and placed pressure on the Park Service to replace the accommodations they had so recently demolished.12 In the years following the war visitation continued to rise. In response, the Park Service initiated a ten year plan to update old and develop additional facilities and roads in Glacier Park. Named "Mission 66" for the anticipated completion date, the project concentrated on areas already developed. The major construction projects included a new administration at West Glacier, two new visitor centers and housing for park employees. The remainder of the project focused on the upgrading of roads, campgrounds, roadside exhibits and signs. A small portion of the budget was funneled into ecological studies. The project silenced the public's cry for upgraded facilities, yet drew criticism from environmental groups who claimed that the improvements had "urbanized" the Park.13

The 60's and 70's were years of turmoil for Glacier Park. The Park Service found themselves confronted by numerous management problems and increasing pressure from environmental groups. Controversial issues such as pollution control, wildlife management and preservation verses recreation continue, even today, to be issues surrounding Glacier Park.14

In 1974 the United Nations selected Glacier Park as one of its "World Biosphere Reserves." This designation makes Glacier Park one of the areas in the world worthy to be guarded as a natural ecosystem for future ecological research.15 The issues surrounding Glacier Park not only include concern for the parks preservation, but for the surrounding area preservation as well. There is fear that the park could become "an island of wilderness surrounded by a sea of development."16

B. THE NATURAL FEATURES

The Glacier National Park region is a dramatically beautiful and dynamic area. Carved by glaciers that have since retreated, the area is a composition of peaks, rivers, glaciers and lakes. Two major rivers define the western boundaries of Glacier Park, the North and Middle Forks of the Flathead. There are over two hundred lakes in the region of varying sizes and hundreds of mountain peaks.17

Over 60 species of mammals live in Glacier Park, including many rare and endangered species such as the grizzly bear and the giant timber wolf. It is home to many large game animals such as the rock climbing mountain goat, mountain sheep, whitetail and mule deer, moose, black bear and elk. Several hundred species of birds make Glacier their summer home including the bald eagle.18

The land is heavily wooded and contains some 1,000 species of plants. In the summer there is a profusion of wildflowers, with the blooms varying from the large white spiked beargrass, to the brilliant indian paint brush, and the delicate glacier lily. In the late summer the woods and hillsides hold large quantities of a variety of berries including wild strawberry, huckleberry, service berry and wild raspberry. Truly a hikers and bears delight!

C. RECREATION

The Glacier National Park region is a land of magic, a wilderness that remains practically untouched despite the influx of travelers. There are numerous recreational activities offered both in the park and surrounding areas to add to the enjoyment of the out-of-doors. Summer in the park includes hiking, with over 700 miles of trails and 60 back country campsites available, horseback riding, rafting, swimming, fishing, boat rides and ranger led interpretive programs. The surrounding area offers golf, rafting, helicopter

rides, swimming, fishing, mountain biking, water skiing and horseback riding.

The end of summer brings a change of pace for the Glacier Park region. Fall is a season of spectacular beauty in the region with the brilliant changing colors of the deciduous trees. Hiking, golf, fishing and fall foliage tours are favored activities of the season, as well as bald eagle watching. Late in the fall, depending on the salmon spawn, numerous bald eagles arrive at McDonald Creek to feed on the salmon before continuing south for the winter. In past years hundreds of eagles have converged on the area creating an breath taking sight.

Winter in the Glacier Park region brings a quiet cover of snow. There a numerous ways to enjoy winter in the area, with skiing being one of the primary recreational activities offered. Wilderness cross country skiing and snow shoeing on marked trails is available in the park. Cross country skiing, both on groomed and ungroomed trails, downhill skiing, snow shoeing and snowmobiling are available in area surrounding the park. Many animals are still active in the winter adding to the enjoyment of the season.

D. THE ARCHITECTURE

The Glacier Park region is very sparsely settled and the architecture of the area is dominated by the original visitor accommodations. Throughout the Glacier region the early buildings reflect a rustic craftsman era charm. The buildings are almost all constructed of wood, many have stone foundations and chimneys (ill. 3). The construction systems of the buildings vary, some are constructed of log, many are of frame construction with clapboard or board and batten siding. Almost all of the buildings have been painted, many a "Forest Service dark brown" (ill. 4).

Without exception, the early buildings all had sloping roofs, many with a half-hipped gable (ill. 5). The roofing materials of the buildings vary, some have wood shingles or shakes, others have a standing seam metal roof.

Most of the buildings have been designed with a gable end over the main entry. The inclusion of a front porch also seems to be a common design feature on many of the cottages and balconies are common on the larger lodges. Ornamentation often takes the form of scrolled wood applied on the surface of the buildings or used as balustrades on the porches and balconies (ill. 6).

The downtown area of West Glacier offers a well preserved sample of historic architecture. Built in the 1940's most of the buildings have a

similar design and detailing (ill. 8 & 9). Just to the south of the downtown area are the Belton Chalets (ill. 1). Constructed in 1910, the Belton Chalets were the first in a series of lodges built in and around Glacier Park by railroad tycoon James J. Hill. The small building closest to the street is still in use, while, unfortunately, the lodge in the rear has fallen into disrepair. In 1987 West Glacier was named the best entrance to a National Park by the Park Service. The residents of West Glacier are very proud of their architectural heritage and this pride is reflected in the new West Glacier school which borrows heavily from the style of the existing buildings (ill. 9).

The historic architectural heritage has been expressed in many of the new hotels and lodges built in the surrounding area. Grouse Mountain Lodge, Kandahar Lodge and the Edelweiss, all located in Whitefish, Montana, display many of the characteristic qualities of the older buildings (ill. 10 & 11). All are made of wood, although none of log, all incorporate the half-hipped roof and two have integrated stone detailing.

E. DESIGN IMPLICATIONS

There are several design implications of the context. First, there should be concern for the environment that the project is to be placed in. The design should respond by being sensitive to the environment, working carefully to become a part of it. The design should impact the site as little as possible, integrating with it, not fighting against it.

Second, the design should acknowledge the historic architecture of the area, but it should not copy it. The existing buildings have become an integral part of the area's context. They have an appropriateness to the area and have come to be admired by resident and visitor alike. The use of natural materials such as stone and wood is definitely implied.

There exists a contradiction between the first two design implications, that of the placement of building in the landscape. Historically, many of the grand lodges have been placed on the site in such a way that they dominate the natural landscape. Many Glacier Hotel, Glacier Park Lodge and Prince of Wales Hotel are all examples of this. Given the present concern for the environment, I feel that the appropriate design response is one that reinforces the preservation aspect.

FOOTNOTES - GLACIER PARK REGION

1. C. W. Buchholtz, Man in Glacier, (West Glacier: Glacier Natural History Association, Inc., 1976), p. 15.

2. Ibid., pp. 2-3.

3. Ibid., pp. 20, 28, 30.

4. Ibid., p. 3

5. Jack Holterman, Place Names of Glacier / Waterton National Parks, (West Glacier: Glacier Natural History Association, Inc., 1985), p. 5.

6. C. W. Buchholtz, pp. 15, 22, 27.

7. Ibid., pp. 30-34.

8. Ibid., pp. 38, 46.

9. Ibid., p. 53.

10. Ibid., p. 56.

11. Ibid, pp. 57-59.

12. Ibid., p. 70.

13. Ibid., pp.73-75.

14. Ibid., pp. 75-79.

15. Ibid., p. 79.

16. David S. Boyer "Pride of Two Nations, Waterton-Glacier International Peace Park." National Geographic, June, 1987, p. 806

17. Ibid., p. 806.

18. Ibid., p. 806.



Illustration 1.- Photo,
Belton Chalets.



Illustration 2. - Photo,
Glacier Park Lodge.



Illustration 3.- Photo, Cabin.



Illustration 4.- Photo, "Forest Service Brown."



Illustration 6.- Photo,
"Swiss Style" Ornamentation.

Illustration 5.- Photo,
Half Hipped Gable.





Illustration 7.- Photo,
West Glacier, Montana.



Illustration 8.- Photo,
West Glacier, Montana.



Illustration 9. - Photo,
School, West Glacier, Mt.

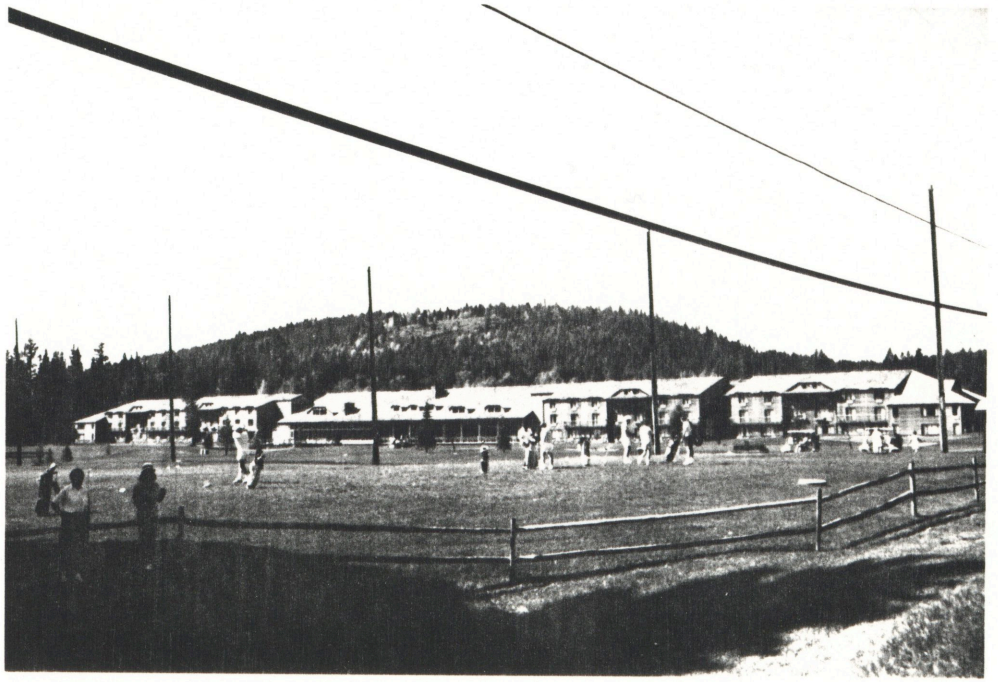


Illustration 10.- Photo,
Grouse Mt. Lodge.



Illustration 11.- Photo, Kandahar Lodge.

Case Studies

VIII. CASE STUDIES

Shining Mountains Lodge is a multi-purpose facility; it is a cross country ski resort with cabins, a skiers day lodge, a hotel, a restaurant, a teaching facility and private residences. Because of this a variety of case studies have been investigated, including cross country ski resorts, downhill ski resort day lodges, hotel accommodations and private residences. The case studies that have been included in this document all display characteristics that are desireable for Shining Mountains Lodge.

A. LONE MOUNTAIN RANCH, BIG SKY, MONTANA.

Many of the cross country ski resorts found throughout the United States are historic structures that have been restored and Lone Mountain Ranch is an outstanding example of this. Begun in the 1920's as a private retreat, Lone Mountain Ranch is now a cross country ski destination resort / guest ranch located in Big Sky, Montana. The Ranch is made up of 20 guest cabins, a dining hall, lodge (the "A-frame"), barn and hot tub enclosure (ill. 1). There are also two private homes, an employee apartment building and a shop that do not appear on the map. The buildings are nestled in a small valley that has a creek running through it (ill. 2). There is a distant view of the Gallatin Range to the south and a view of the Spanish Peaks Wilderness Area to the north. Most of the cabins are not oriented to take advantage of the exterior views, but have an inward focus towards the center of the Ranch. A spectacular view of Lone Mountain is available from the ridge above the Ranch (ill. 3).

The characteristic of Lone Mountain Ranch that is the focus of this study is the ambience that has been created through the use of materials, building design and the location of the buildings on the site. Many of the buildings were built in the 1920's using heavy log construction, stone and handmade iron hardware. Later additions utilized log construction as well as wood stud wall construction sheathed in wood. Wood is the predominant finish material used. Most of the buildings have pine floors, log interior walls and open wood beamed ceilings. Native stone was used to build the fireplaces in all of the older buildings. The use of the natural materials seems to compliment the natural surroundings and give the buildings a rustic, comfortable feeling.

The design of the buildings is rather simple with most being rectangles, "t" shape or crucifixes. The simplicity of the design seems to harmonize

rather than compete with the natural surrounding. One of the unique qualities of the guest cabins is that the interior layout of almost every cabin is different. Each cabin has a separate "personality" and a name to go with it. Chipmunk is one of the smallest cabins on the ranch, while Bullmoose is one of the largest. Guests often form attachments to particular cabins, requesting the same one year after year! One feature of almost all of the cabins is the front porch, which, regardless of solar orientation, is generally in use throughout the summer months. The buildings are simple in form, but beautiful none the less (ill. 4 & 5).

The grouping of the buildings appears to be one of the most important components of the ambience of the Ranch. While the buildings appear to be haphazardly scattered about the open meadow and the bordering forest each building relates well with its neighbor and with the complex as a whole -- with the possible exception of "Chipmunk" and "Porcupine" which are rather isolated behind the dining hall. Almost all of the cabins face towards the center of the Ranch and provide a good spot for watching daily activities. The cabins are far enough apart to impart a feeling of privacy, yet close enough together to give the visitors security (ill. 6).

Many of the spatial and functional requirements for Shining Mountains Lodge were derived from Lone Mountain Ranch. However, Lone Mountain Ranch uses some of its spaces to fulfill several functions. Lone Mountain Ranch utilizes it's dining room as a meeting room, its guest living room doubles as a class room and a game room and its main entry also serves as the billiard room. There is no guest lodging in the "A-Frame" building, however, employee apartments are located there.

B. WACHUSETT MOUNTAIN BASE LODGE, PRINCETON, MASSACHUSETTS.

The Wachusett Mountain Lodge is located in a Massachusetts State Park on the slopes of Wachusett Mountain, the second highest mountain in Massachusetts (ill. 7). The ski area that the Lodge serves has a mandated maximum limit of 2,000 skiers per day. The Lodge is a "day lodge", that is, one that does not include any sleeping accommodations. The Lodge includes a dining room, bar, retail shop and ski rental shop (ill. 8). The Lodge operates year round offering meals and hosting conferences and receptions in the "off" season. The Lodge incorporates a traditional design with very sophisticated energy systems.1

The Wachusett Mountain Lodge, while much larger than the lodge building proposed for Shining Mountain Lodge complex, has several desirable characteristics. Wachusett Mountain Lodge has utilized the vernacular vocabulary of the New England states, that of wood clapboard with wood trim and sloping roof, yet it has a fresh contemporary feeling. The building form also appears to "fit" the site and has a timeless quality to it. It has become quite popular with the area residents having been used for both business groups and wedding receptions.

The interior of the Lodge is very striking. The use of stained wooden clapboard has been carried through to the interior. The clapboard in combination with the plants, stone and copper create a very rich, yet comfortable atmosphere (ill. 9). The dining room is a wonderful expanse of wood, glass and plants (ill. 10). Traditional exterior lighting fixtures have been put to a novel use, adding another layer to the atmosphere of the interior design. The overall feeling to the interior of the Lodge is "casual, yet classy!" The soaring space feels a bit too high, but would probably be more appropriate when filled with diners.

C. HOTEL LENADO, ASPEN, COLORADO.

Hotel Lenado is a small, 19 room hotel located in a residential neighborhood in Aspen, Colorado. The Hotel is a "bed and breakfast" operation that caters to skiers and conference groups. The Hotel has a unique floor plan as all guest rooms are accessed off of the lobby or the balcony above the lobby and, there are no halls (ill. 11). The Hotel has been quite successful and is usually solidly booked throughout the year.2

Hotel Lenado has several qualities that give it a unique flavor. While the exterior responds to the residential quality of its location (ill. 12), it is the interior use of space that is very special. The concept of organizing the rooms around the two and one half story lobby makes the Hotel feel less "hotel like" and more personal. The guest rooms in the Hotel Lenado are particularly nice. The furnishings are all handmade wood and the beds are covered with plump quilts (ill. 13). The four corner bedrooms have a wood sheathed high ceiling and a small wood burning stove. The rooms have a very romantic, cozy feeling, a quality that is desired in the guest rooms of Shining Mountains Lodge.

FOOTNOTES - CASE STUDIES

1. Grace Anderson, "A Ski Lodge for All Seasons", Architectural Record, October 1984, pp. 188 -191.

2. Mildred F. Schmertz, "Wish You Were Here...", Architectural Record, July 1985, pp. 116 -121.

Lone Mountain Ranch

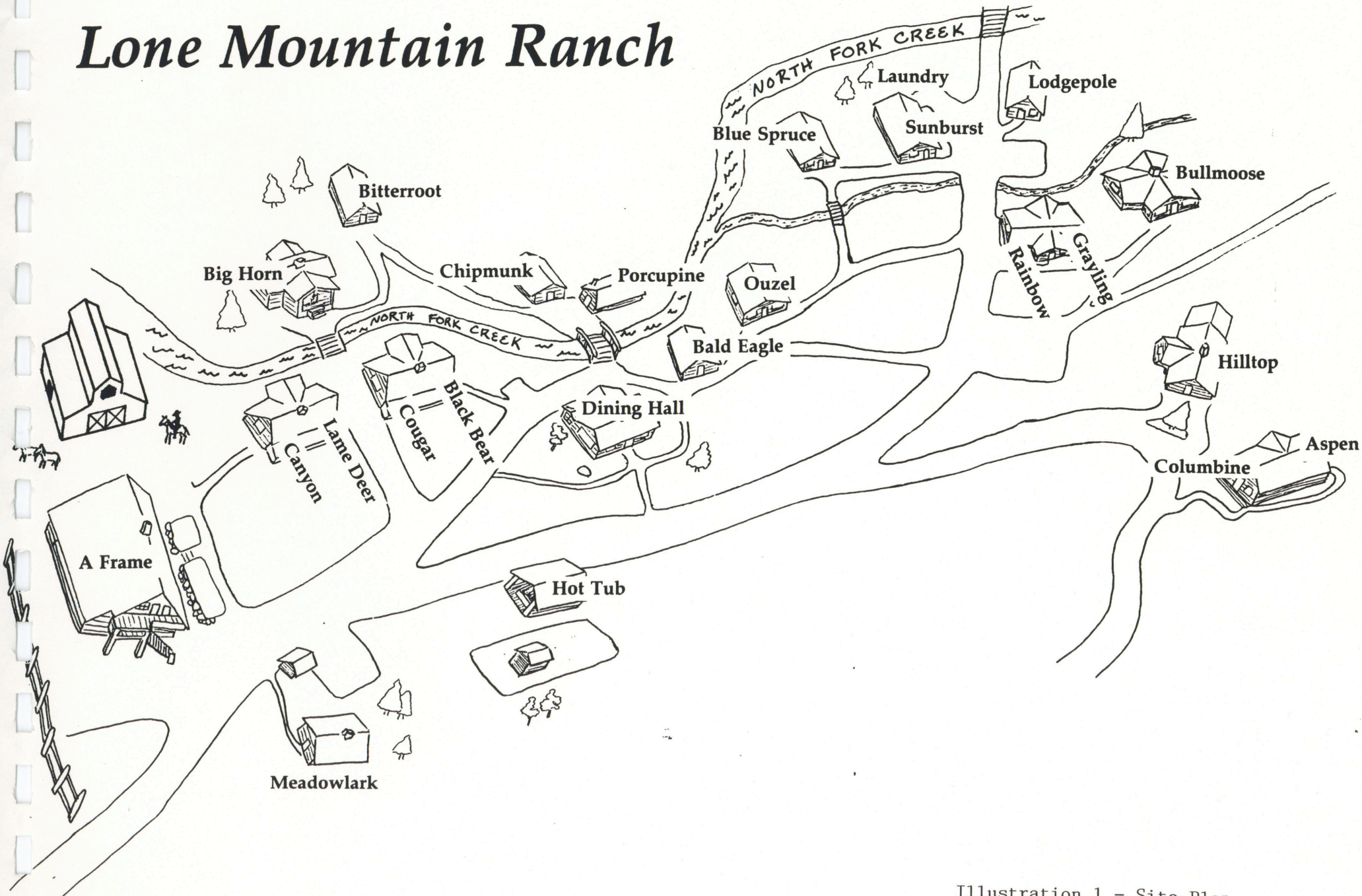


Illustration 1.- Site Plan
Lone Mountain Ranch



Illustration 3.- Photo,
View of Lone Mountain.

Illustration 2.- Photo,
Lone Mountain Ranch.



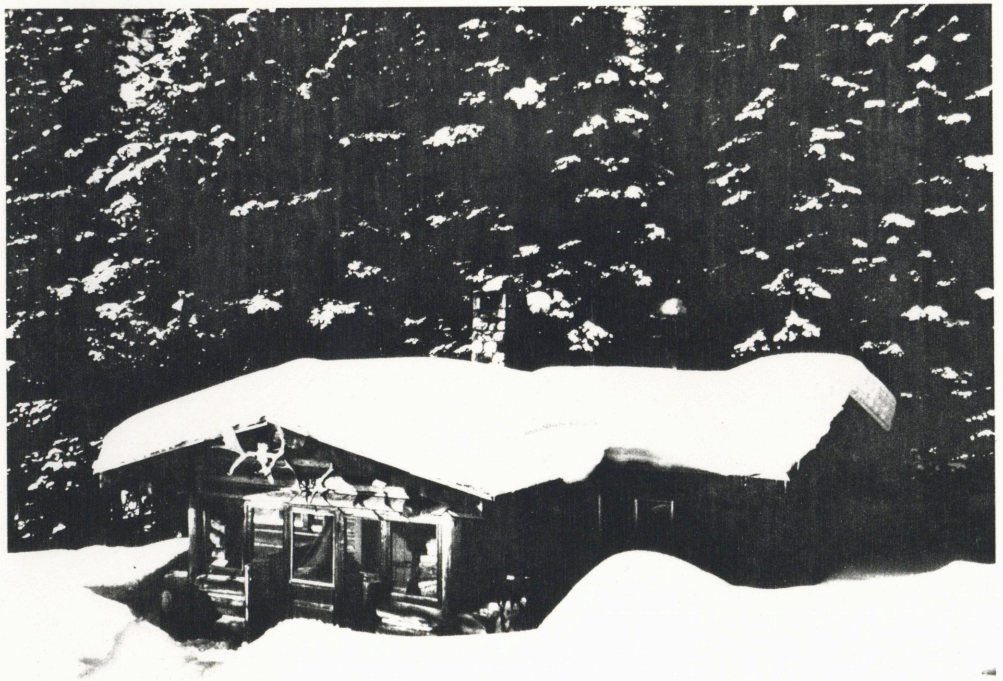


Illustration 4. - Photo,
Cabin, Lone Mt. Ranch.



Illustration 5.- Photo,
Cabin, Lone Mt. Ranch.

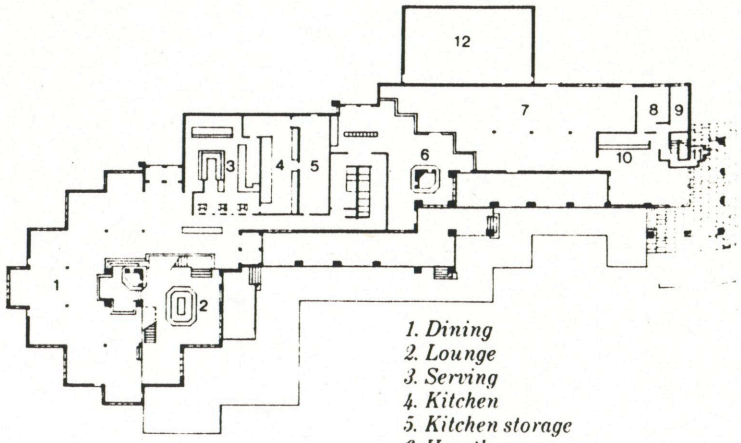
Illustration 6.- Photo,
Cabins, Lone Mt. Ranch.





Illustration 7.- Wachusett Mountain Lodge Exterior.

Illustration 8.-
Wachusett Mountain Lodge
Floor Plan.



1. Dining
2. Lounge
3. Serving
4. Kitchen
5. Kitchen storage
6. Hearth room
7. Retail/rental
8. Ski school/gallery
9. Manager
10. Information desk
11. Tickets
12. Snowmaking

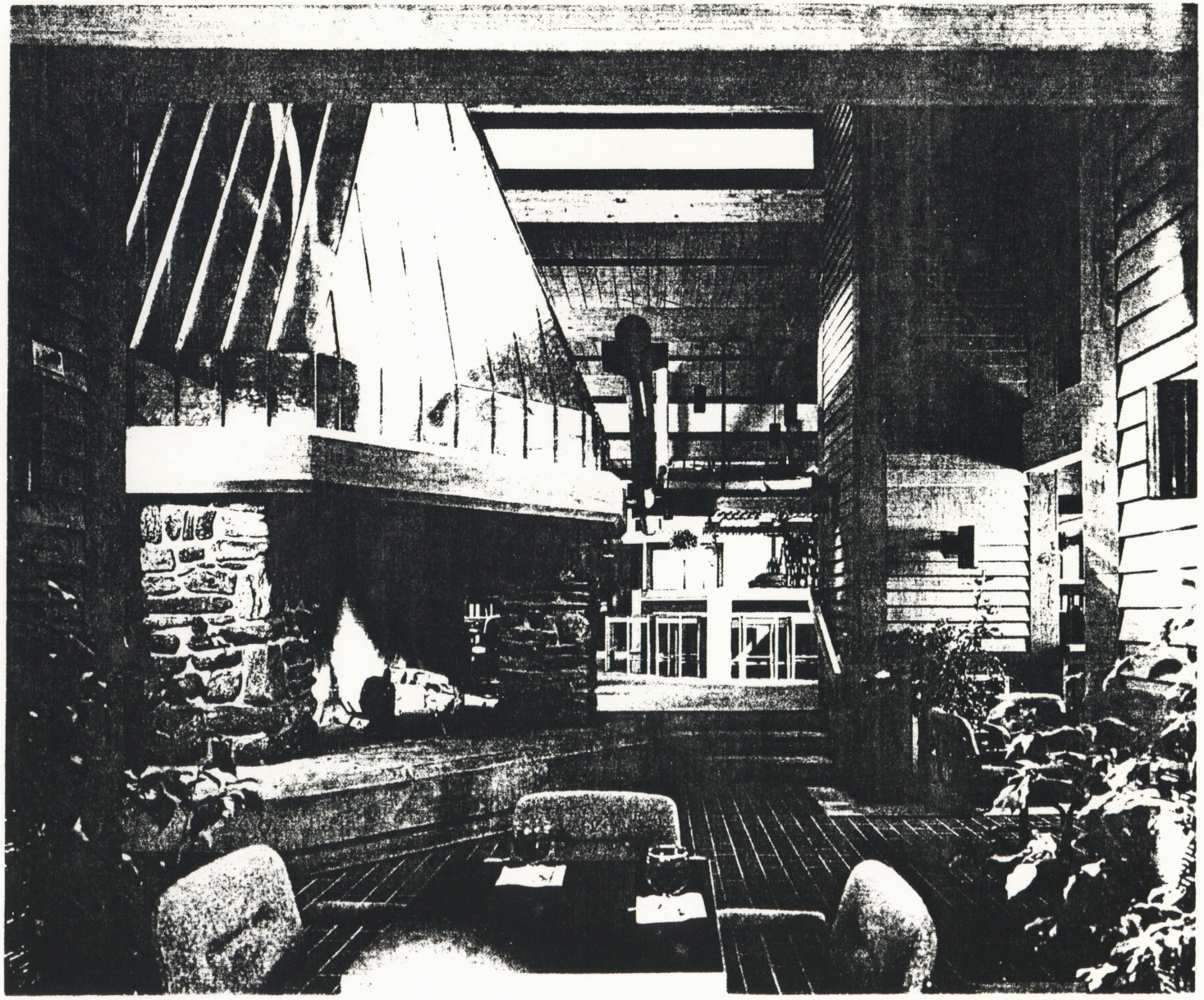


Illustration 9.- Wachusett Mountain Lodge Lounge.

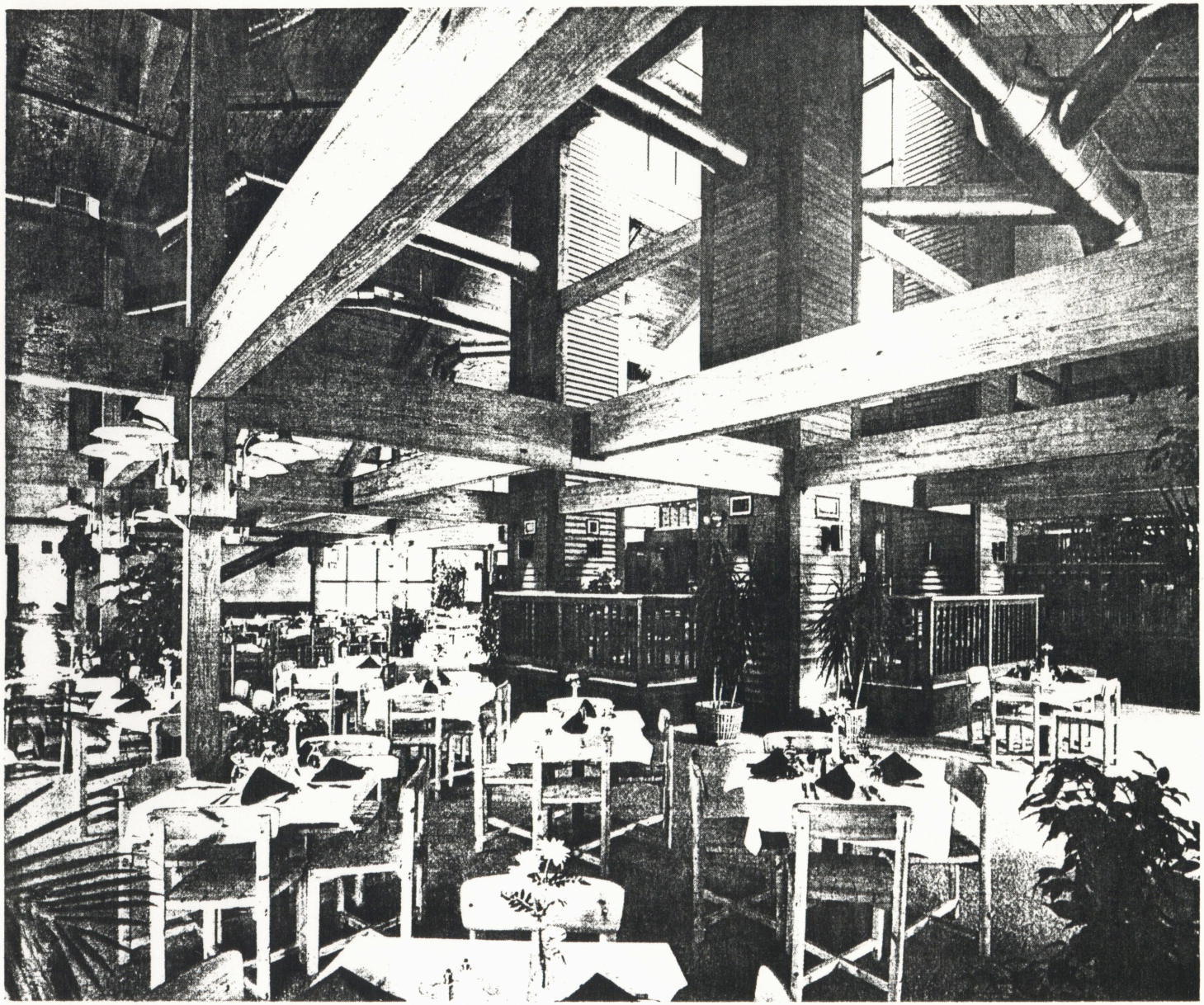


Illustration 10.- Wachusett Mountain Lodge Dining Room.

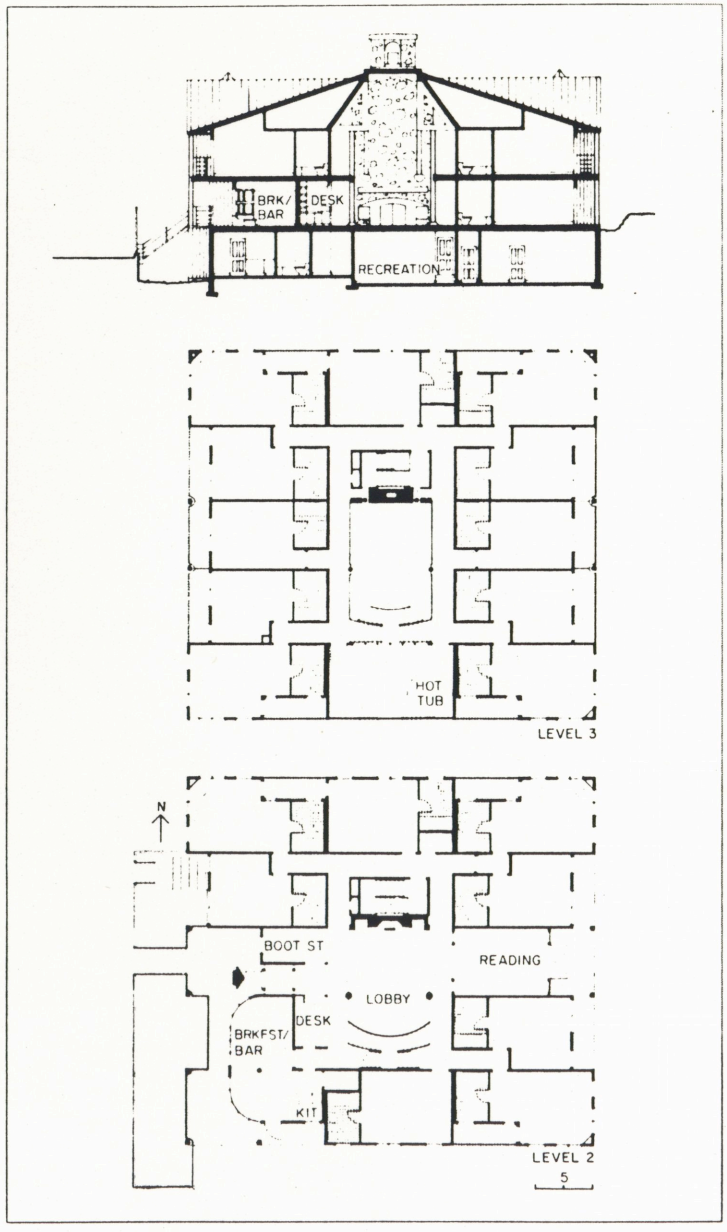
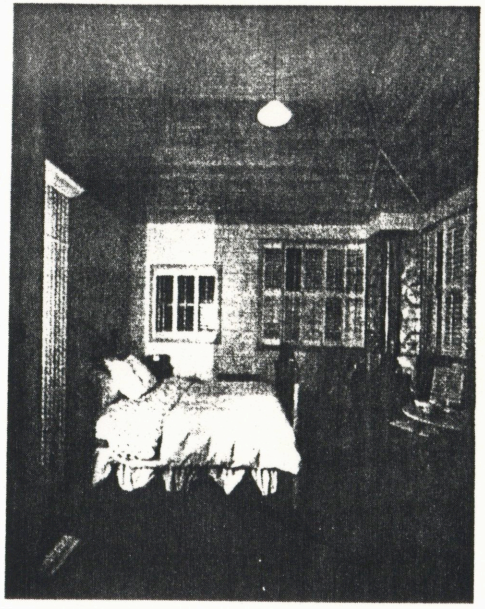


Illustration 11.- Hotel Lenado
Floor Plan and Section.

Illustration 13.
Hotel Lenado
Guest Room.



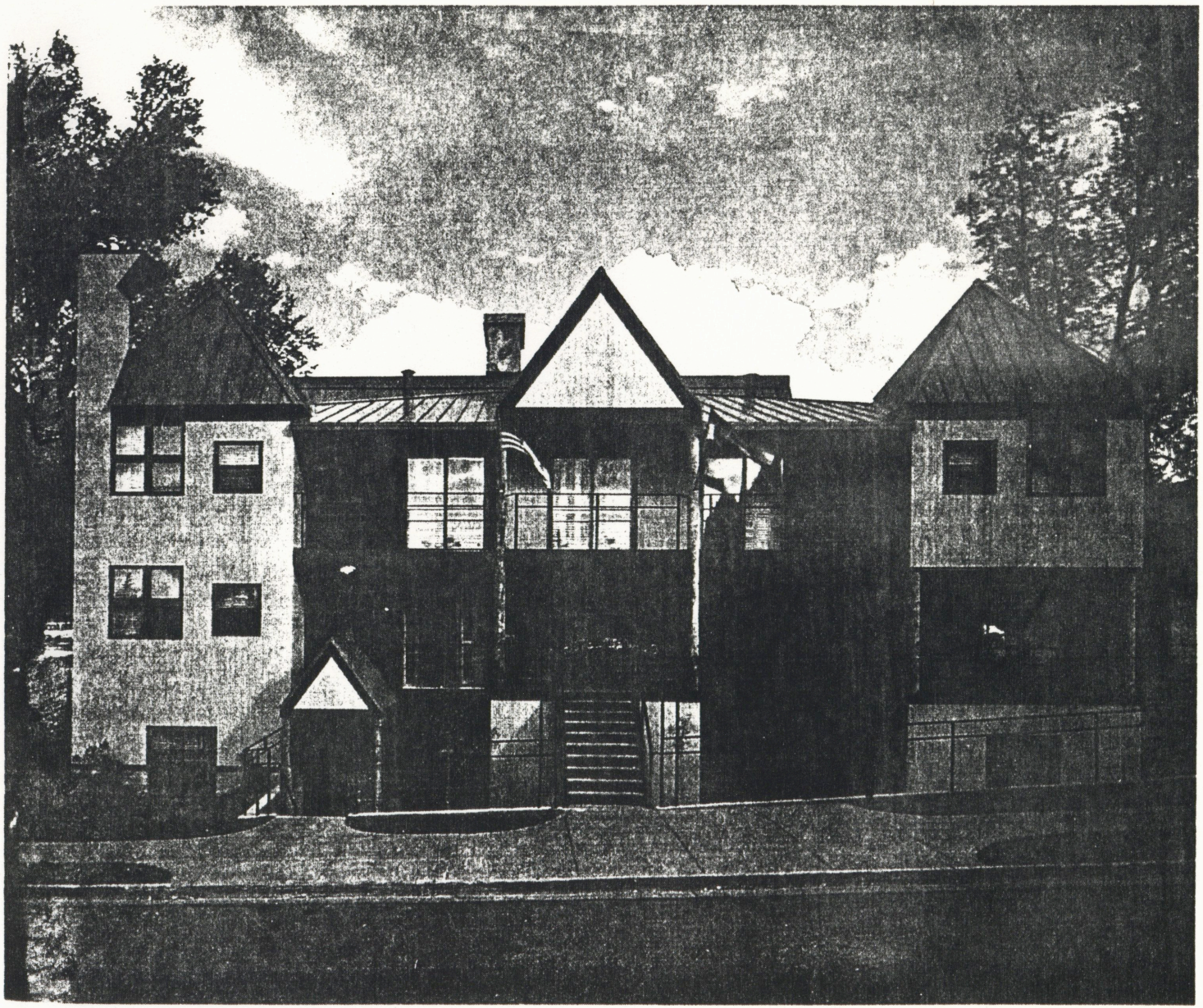


Illustration 12.- Hotel Lenado Exterior.

Codes

IX. ZONING AND BUILDING CODES

The project will have to conform to a number of building codes. They are as follows:

1. The Uniform Building Code
2. The Life Safety Code
3. The Fire Marshall Code
4. Montana State Electrical Code
5. Montana State Plumbing Code

The West Glacier area does not fall within any local building department's jurisdiction. This generally means that projects in the area proceed uninspected, however, given the size and scope of the project the State of Montana Building Code office would probably inspect the construction.1 The Flathead County Health Department requires a plan check prior to construction for conformance to Health Department sanitation requirements.2

The site is in a presently unzoned area. A master plan has been developed for the area and the site has been designated as "agricultural". The Flathead County Planner, David Grier, indicated that the designations are flexible and that the County wants to work with potential developers in adjusting designations.3

FOOTNOTES - BUILDING CODES AND ZONING

1. Telephone interview with David Grier, Flathead County Planning Department, Kalispell, Montana, 19 January 1988.

2. Telephone interview with Cathy Hummell, Flathead County Health Department, Kalispell, Montana, 19 January 1988.

3. David Grier, 19 January 1988.

Additional Information

X. ADDITIONAL INFORMATION

A. The History of Cross Country Skiing

Cross country skiing has a long and rich history. The earliest physical evidence of the use of skis comes from the Scandinavian countries where, in Hoting, Sweden, the oldest surviving ski was found. Dated as a late Stone Age relic, this 4,500-year-old ski is made of pine, 4" wide, 4 and one half feet long with a squared tail and an upturned rounded tip. It is believed that skiing was used primarily as a means of survival, to facilitate travel and hunting during the winter months.1

Cross country skiing came to the United States between 125 and 150 years ago. The first skiers were of Scandinavian descent and it is believed that skiing first took place in the Sierra Nevada range of California. Early photos of these skiers have been dated back to the 1850's. It is believed that skiing was at first a means of transportation for the miners working in the gold fields and for mail carriers transporting mail across the Sierra Nevada. Later, skiing developed into a gambling sport, pitting miner against miner in races of speed and daring. Skiis at this time ranged from eight to twenty five feet long with the only means of slowing down being a pole that was dragged in the snow. Because of the length of the skis, turning was next to impossible.2 Indeed, races at any speed required a great deal of daring!

The earliest documented evidence of cross country skiing east of the continental divide appeared in 1872 when the Nansen Ski Club was founded in Berlin, New Hampshire. By 1910 skiing had spread throughout the New England states and into the Midwest states as well. Interest in cross country skiing continued until the end of World War II, when participation in the sport dropped dramatically.3 This decease was probably due to the increased popularity of downhill skiing which had developed as an offshoot from cross country skiing in the 1930's with the invention of ski tows and lifts.4

Today, cross country skiing is in the midst of a period of renewed interest that began in the 1960's.5 Cross country skiing became popular during the 60's and the 70's for a number of reasons; it was inexpensive to participate in, it was a way to "get back to nature" and it provided one of the most complete forms of exercise available. The cross country skiers of the 1980's are no longer "just taking off in the boondocks and doing their own thing with a pair of Levis and some granola," instead they are an upscale group

of people gravitating toward cross country ski centers, fashion and performance.6

B. The Exercise Benefits of Cross Country Skiing

The exercise and fitness-building aspect of cross country skiing continues to be one of the sports major attractions. Exercise was named in a recent survey as the number one reason to cross country ski.7 As an exercise, cross country skiing is almost unsurpassed. It is a "panaerobic" sport, or one that involves a number of muscle groups at once in aerobic exercise. It is also a "complete" form of exercise in that it builds muscle and kinesthetic fitness as well as aerobic fitness. Cross country skiing is one of the few forms of exercise that accomplishes this.8 In addition, cross country skiing burns an average of 500 to 1000 calories per hour depending on exertion.9

FOOTNOTES - ADDITIONAL INFORMATION

1. Sven Wilk and David Sumner, The Regnery Guide to Ski Touring. (Chicago: Henry Regnery Company), p. x.

2. Bob Woodward, "Roots - Cross Country Style," Ski X-C, Winter, 1985 p. 58.

3. Woodward, pp. 58 -60.

4. M. Michael Brady and Lorns O. Skjemstad, Ski Cross Country. (The Dial Press.) p. 4.

5. Woodward, p. 60.

6. Bob Schaap, "New Day Dawning for Cross Country," Ski Area Management, May 1987 pp. 48, 132.

7. "Ski Industries America Survey", cited by Jim and Sharon Mollica, "Elk Mountain Lodge, Business Plan" (Aspen: 1987) pp. 5.

8. R. C. Farentinos "Master Plan," Cross Country Skier, December, 1987. pp. 96-98.

9. Brian J. Sharkey, Physiology of Fitness. (Champaign: Human Kinetics Publishers, 1979.) p. 351.

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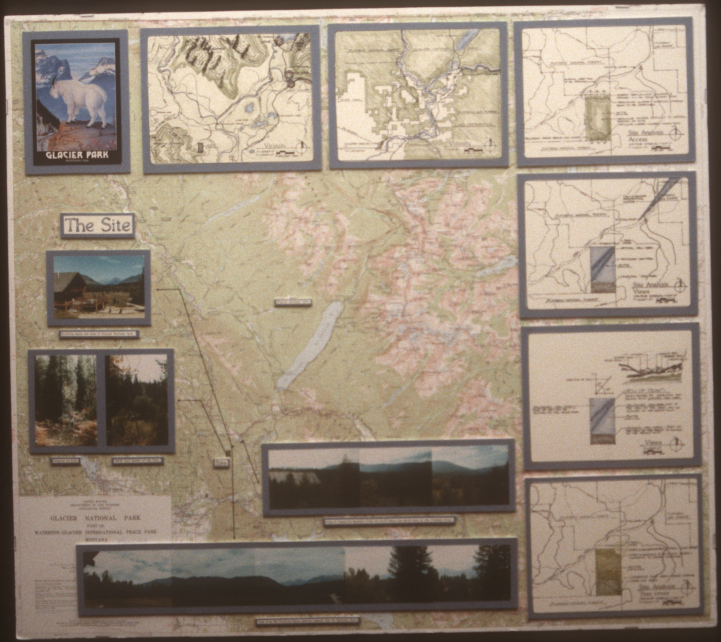
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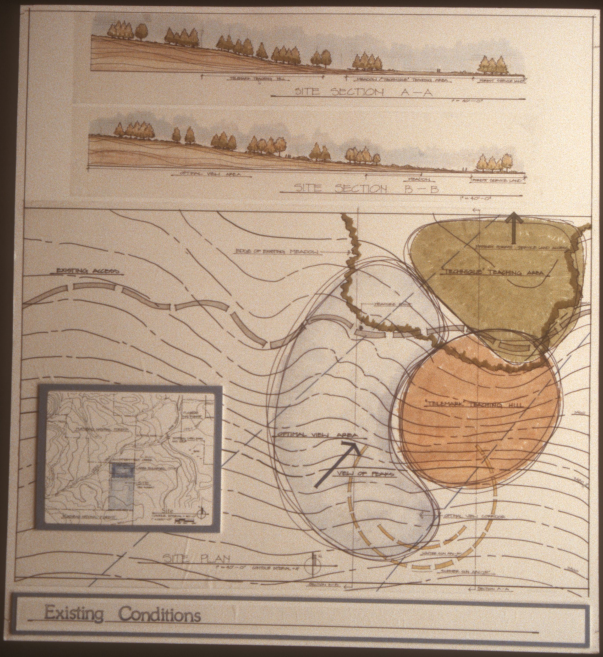
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GLACIER PARK
The Site
GLACIER NATIONAL PARK
WATERTON-GLACIER INTERNATIONAL PEACE PARK
MONTANA



Existing Conditions

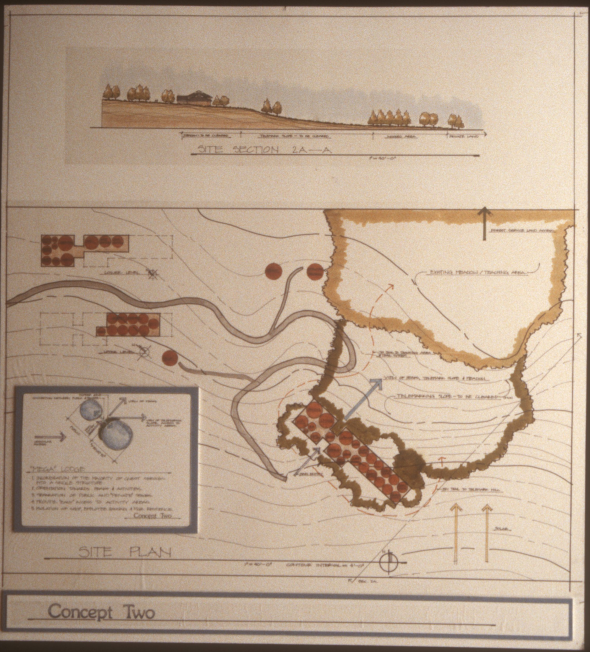


SITE SECTION 1A-A



SITE PLAN

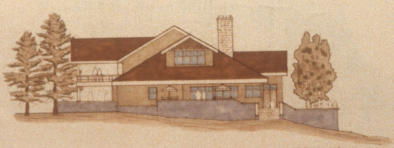
Concept One


SITE SECTION 2A—A
SITE PLAN
Concept Two

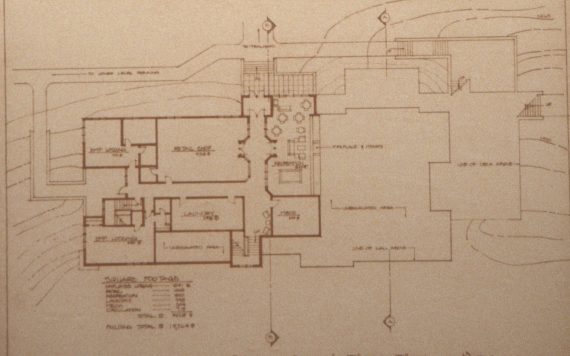

SITE SECTION 3A—A
SITE SECTION 3B—B
SITE PLAN
Concept Three



South - West Elevation



South - East Elevation

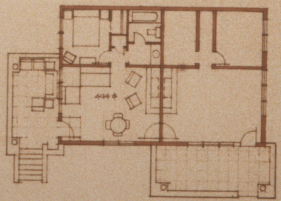


Lower Level Floor Plan



ENTRY ELEVATION
1" = 10'-0"

NORTH - EAST ELEVATION
1" = 10'-0"



FLOOR PLAN
1" = 10'-0"

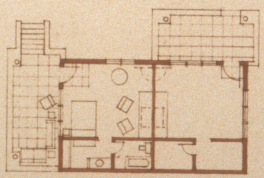
NOTE: CABIN 'A' ALSO APPEARS MIRRORED

Cabin "A" - Duplex Suite



SOUTH - EAST ELEVATION

NORTH - EAST ELEVATION

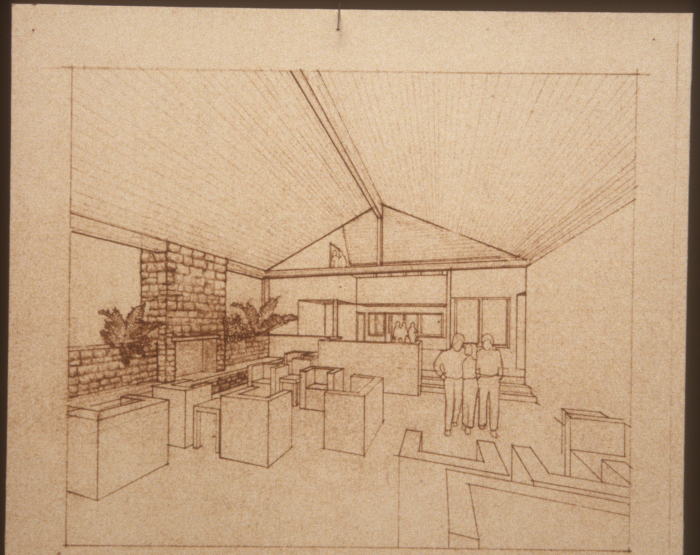


FLOOR PLAN

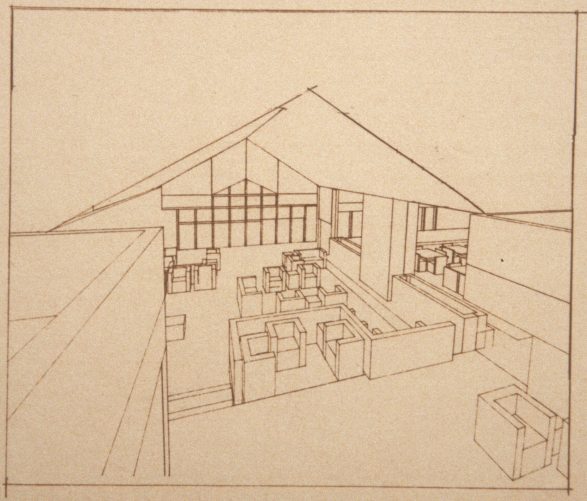
1" = 10'-0"

N.

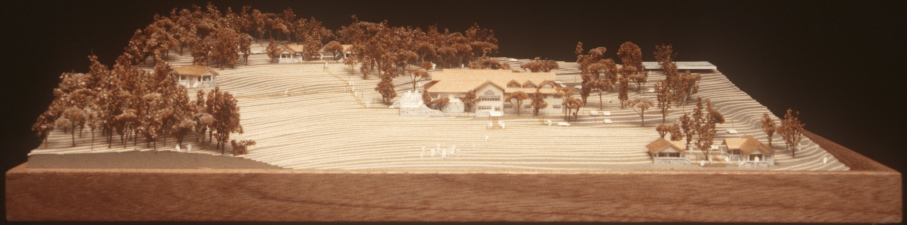
Cabin 'C' - Duplex Single



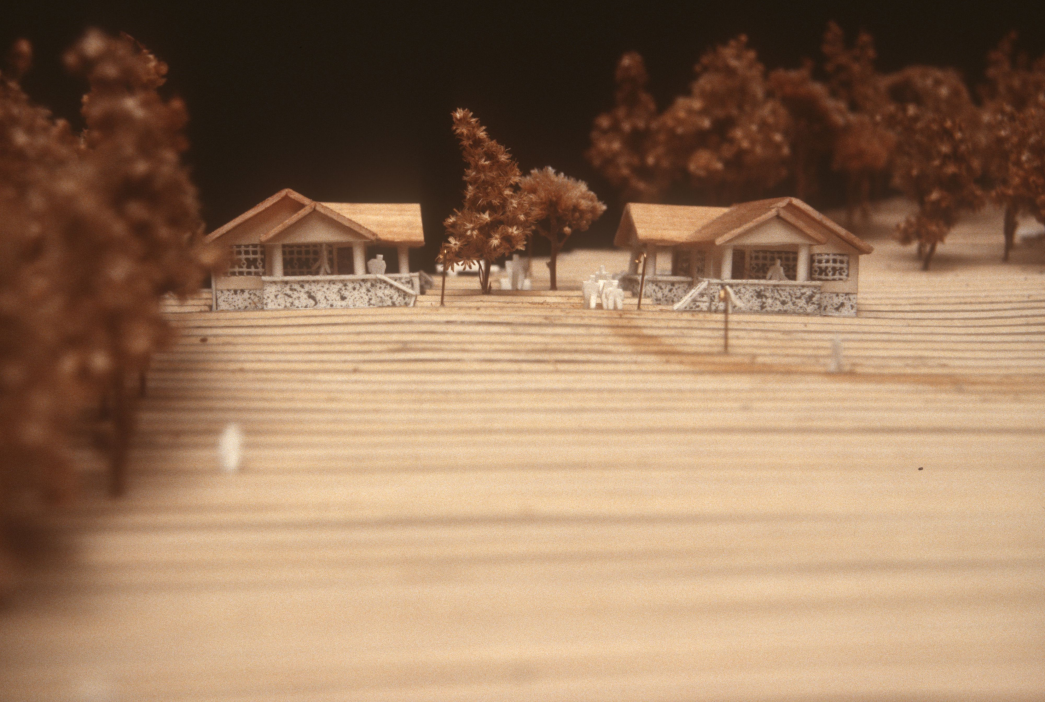
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